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APPRAISAL OF A

SECOND EDUCATION PROJECT

IN THE

REPUBLIC OF KOREA

April 30, 1973

Education Projects Division
Asia

Currency Equivalents Used in this Report

US$ 1	=	Won 400
Won 1	=	US$ 0.0025

Measures

1m	=	3.28 feet
$1m^2$	=	10.76 sq. feet
1 acre	=	0.405 hectares

Fiscal Year

January 1st - December 31st

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This report is based on the findings of a preparation-appraisal mission which visited the Republic of Korea in October-November, 1972. The mission consisted of Messrs. G. Pennisi (economist) and S. Naimie (architect) of the Bank and Messrs. R. Lesire (agricultural educator, FAO), C. L. Germanacos (educational planner, consultant), J. C. Jones (technical educator, consultant) and B. R. Teare (engineering education specialist, consultant).

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BASIC DATA (est.)
1971

General

Area	98,438 Km^2
Population	32 million

Education (including private schools)

Enrollment in primary schools (grades 1-6)	5,807,000
As a percentage of 6-11 years age group	109%*
Enrollment in middle schools (grades 7-9)	1,602,000
As a percentage of 12-14 years age group	60%*
Enrollment in high schools (grades 10-12)	675,000
As a percentage of 15-17 years age group	30%*
Enrollment in post-secondary institutions	199,000
Total expenditure on education and training	Won 150 billion
As a percentage of GNP	5.3%
Ministry of Education expenditure	Won 102.1 billion
As a percentage of total government expenditure	19.4%

*Includes over-aged students.

GLOSSARY

CLEP	Comprehensive Long-Range Educational Plan, the long-term plan prepared by an interministerial commission in 1970.
KEDI	Korean Educational Development Institute, a government agency in charge of curriculum development and educational research.
MOE	Ministry of Education
MOST	Ministry of Science and Technology
OLA	Office of Labor Affairs, the agency of the Ministry of Health and Social Affairs responsible for accelerated and in-plant training.
OSROK	Office of Supply of the Republic of Korea, the agency responsible for government procurement.
ORD	Office of Rural Development, the agency of the Ministry of Agriculture and Forestry responsible for the extension service.
SNU	Seoul National University
TFYP	Third Five Year Plan, 1972-1976.

Higher Schools:	Institutions presently offering secondary (grades 10-12) and post-secondary (grades 13-14) vocational courses in technical, agricultural and fishery education. Grades 10-12 are being phased out.
Junior Teacher Colleges:	Primary school teacher training institutions (grades 13-14).

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APPRAISAL OF A SECOND EDUCATION PROJECT

SUMMARY AND CONCLUSIONS

i. This report appraises a second education project in the Republic of Korea for which Bank/IDA assistance of US$43 million is proposed. A first education project, assisted under Credit 151-KO extended in 1969, is helping qualitative improvement in technical and agricultural education.

ii. The Korean education and training sector, although quantitatively well developed, has significant weaknesses. These include insufficient outputs to meet the needs for craftsmen, technicians and some categories of professionals, such as production engineers and secondary school teachers; outmoded curricula; and a teaching approach which is over-theoretical due to the lack of practical facilities. In particular, many institutions do not have the basic equipment required for an acceptable standard of skill acquisition. The proposed project would support the first stage of reforms planned to align education and training more closely to the needs of a rapidly expanding economy in which agriculture and industry are undergoing wide transformation. In particular, it would: (a) extend the training capability of a selected number of agricultural and technical high schools; (b) expand and improve higher schools 1//junior colleges for sub-professional training; (c) strengthen university education in the fields of agriculture, engineering, natural sciences and merchant marine; (d) expand and reorient teacher education; and (e) assist the programming of planned educational reforms.

iii. Specifically, the project would consist of:

(a) equipment and extensions of buildings for:

- 14 agricultural and 18 technical high schools;
- 10 higher schools/junior colleges for agricultural, industrial, fishery and nursing training;
- selected colleges of agriculture, engineering, science in 9 universities and a college of merchant marine; and
- 10 junior teacher colleges 1/ and 12 colleges of education;

1/ See Glossary and Chart 2.

(b) specialist services and fellowships for carrying out two pre-investment studies to complete programming in the fields of health and management education respectively and for assisting staff development in the project institutions at the university level.

The project institutions would have a total of 77,220 student places, of which only 5,900 would be new since emphasis would be on the improvement of the quality of the output and of the efficiency and productivity of the sector rather than on expansion.

iv. The improvement program of vocational education in the agricultural and technical high schools (grades 10-12) of the project (27,800 student places and 9,000 student places respectively) provides for the introduction of new and more practical curricula and the establishment of closer ties with the agricultural extension and with industry. In addition to their regular three-year programs, the schools would conduct accelerated training and evening courses.

v. The project would assist the re-organization of six higher schools (grades 10-14 at present) to provide two-year post-secondary technician courses (grades 13-14) and the improvement of four schools of nursing (grades 13-15). The re-organization of the higher schools (4,720 student places) would expand output at the sub-professional level in line with estimated manpower needs, rationalize the system and improve equality of educational opportunity since all secondary school graduates would be able to compete for entry into such higher schools. The improvement of a limited number of schools of nursing (1,200 student places) where training is geared to the needs of rural areas, together with provision for a pre-investment study on health education, would be a first step toward comprehensive development of medical and para-medical training.

vi. The colleges to be strengthened as a part of the project have been selected in accordance with the government's university development plan for: (a) improving the quality of a limited number of the 71 Korean universities, giving priority to Seoul National University and to national universities in the provinces; (b) emphasizing relevance to regional manpower needs; and (c) continuing enrollment control but making the present system more flexible. The colleges of agriculture in the project (1,700 student places) would provide teaching and research support to other agriculture colleges and emphasize instruction and research in animal production and high yielding rice varieties, two fields of special significance to increased food production. In the colleges of engineering and sciences (12,000 student places), curricula would be modernized in support of the planned development of heavy and chemical industry. The college of merchant marine (800 student places) when properly equipped, would update instruction in navigation and marine engineering techniques in line with plans to promote the shipping industry.

vii. Ten junior teacher colleges for primary teacher training (8,800 student places) would be equipped to permit the implementation of a training program designed to prepare the teachers for wider responsibilities in community development and for the use of modern instructional techniques. The 12 colleges of education, equipped and expanded as a part of the project (11,200 student places), would increase the supply of secondary teachers in accord with estimated needs and promote the institutional and administrative changes required to give pedagogical training to the increasing number of graduates from other colleges (agriculture, liberal arts and sciences, engineering), expected to enter the teaching profession.

viii. The total project cost is estimated at US$70.2 million and the foreign exchange component at US$47 million or 67% of the total project cost. This high percentage is the result of the project assisting the improvement of existing institutions rather than expanding enrollment; this requires a large amount of equipment and only limited civil works. The Bank Group would assist in financing the costs of equipment, specialist services and fellowships and the Government of Korea would finance the costs of civil works, furniture and local handling and transportation of equipment (US$27.2 million including a foreign exchange component of about US$4 million). Bank/IDA assistance (US$43 million) may entail a limited amount (US$2 million) of local currency financing to cover the ex-factory cost of locally manufactured equipment procured after international competitive bidding.

ix. A project unit already established under the Ministry of Education would be responsible for the implementation and overall supervision of the project. It would work in close collaboration with the Office of Supply, Republic of Korea, for the procurement of civil works, furniture and equipment. The contracts for equipment would be awarded on the basis of international competitive bidding. Contracts for furniture and civil works would be awarded on the basis competitive bidding following national advertising because of the limited sizes involved in each institution and difficulty in "packaging" contracts to attract foreign bidders. Preferred domestic manufacturers of equipment would be awarded a margin of preference equivalent to the existing customs duties applicable to competing imports or 15% of the c.i.f. price, whichever is lower. Customs duties on most equipment items are higher than 15%.

x. In the late 70's - early 80's the project institutions would supply some 25% of the estimated manpower needs for craftsmen, 20% for sub-professionals, 80% for agricultural graduates, 30% for engineering and science graduates, 70% for primary school teachers, and 40% for college of education graduates. In addition, improved training is expected to contribute to productivity growth by increasing worker efficiency and reducing the amount of defective work and accidents. As 70% of the student places to be equipped are in small towns and rural areas, the project would also assist in improving educational opportunity and income distribution because in Korea there is a highly positive correlation between educational attainment and earnings. In sum, the project would form an integral part of the Bank

Group lending strategy to Korea to assist industrial transformation, correct income disparities between the urban and rural sectors and support the infrastructure required to meet these objectives.

xi. The project would also assist most of the priorities of an education strategy consistent with Korea's socio-economic needs. By providing functionally-designed and well-equipped facilities and reorienting teacher training, the project would promote the application of relevant curricula and support administrative and organizational improvements throughout the education sector. As a result, education would have a more practical emphasis which would increase its capability of supplying outputs with the skills and attitudes required by an expanding economy and increased labor mobility by sector, level and type of employment.

xii. Bank/IDA assistance (US$43 million equivalent) would meet 90% of the estimated foreign exchange costs and be equivalent to about 60% of the total project costs. Disbursements would be made against the c.i.f. cost of imported equipment, the ex-factory cost of locally produced equipment, 70% of the total cost of imported equipment procured locally and the foreign cost of specialist services and fellowships.

xiii. The project is suitable as a basis for a credit of US$20 million and a loan of US$23 million to Korea.

REPUBLIC OF KOREA

APPRAISAL OF A SECOND EDUCATION PROJECT

I. INTRODUCTION

1.01 Bank Group operations in Korea are designed to assist the transformation of the country's industrial base, reduce income disparities between urban and rural sectors and support the development of the infrastructure required to meet these objectives.

1.02 Within this framework, an IDA credit of US$14.8 million equivalent (Credit 151-KO) was extended in 1969 to finance a first education project to assist qualitative improvements in agricultural, technical and teacher education and to expand the supply of skilled manpower at the sub-professional level. After some initial delays, project implementation is proceeding satisfactorily. The project is now expected to be completed about one year later than estimated at the time of appraisal and this may require an extension of the Closing Date (December 31, 1974) by about six months.

1.03 At the time of appraisal of this first project, Korea lacked a well defined educational plan. The government was conducting a comprehensive examination of its primary and secondary education and initiating the preparation of a long-term plan. Other studies were analyzing higher education and certain aspects of agricultural, technical and vocational training. It became apparent that, before making a major investment in education, the World Bank Group should await the completion of these studies and plans. Therefore, the first education project was limited to obvious high priority items and, in 1971, the Bank carried out an education sector review to identify investment programs.

1.04 The proposed second project stems from this evaluation which was followed by extensive discussions with the government before and during the appraisal mission. The project would assist the first phase of a long-term plan designed to align education closer to the needs of agriculture, industry and social development in general. Specifically, it aims at extending the training capability of agricultural and technical education, increasing and improving the supply of sub-professionals, strengthening university education in selected areas, expanding and reorienting teacher education and assisting in the programming of planned educational reforms. The total cost of the project is estimated at US$70.2 million and the foreign exchange component at US$47 million.

1.05 A Bank mission visited Korea in October-November, 1972 to assist the government in completing the preparation of the project and, simultaneously, to appraise it. The mission consisted of Messrs. G. Pennisi (economist), S. Naimie (architect) of the Bank and Messrs. R. Lesire (agricultural educator, FAO), C. L. Germanacos (educational planner, consultant), J. C. Jones (technical educator, consultant) and B. R. Teare (engineering education specialist, consultant).

II. ECONOMIC DEVELOPMENT AND MANPOWER NEEDS

Background

2.01 The last decade has been a period of unprecedented economic growth for the Republic of Korea. Despite limited natural resources, increases in real GNP have averaged nearly 10% p.a. while, due to a successful family planning program, population growth has slowed down from almost 3% p.a. during 1955-1966 to 1.8% p.a. during 1966-1970. Per capita income, less than US$100 in the late 50's, is now approaching US$300. The main sources of this growth have been: (a) a labor force endowed with work discipline and entrepreneurial talent; (b) a sound industrialization strategy; and (c) an aggressive trade policy resulting in an increase in commodity exports averaging 39% p.a. from 1962 to 1971.

2.02 As a result of rapid growth, the structure of Korean economy and society has changed considerably. In 1960, agriculture contributed some 40% of GNP and manufacturing about 16%; the share of agriculture is now 26% of GNP and that of manufacturing almost 25%. While in 1960 about two-thirds of industrial production was from small and medium-scale enterprises and one-third from large companies, this ratio was completely reversed by 1968. Furthermore, some 85% of commodity exports now come from manufacturing compared with less than 20% in 1960. Despite these changes, certain interrelated problems remain: (a) increasing reliance on foreign capital inflows has caused difficulties in financial management; (b) industrial policy needs reorientation towards heavier industry; and (c) the gap between incomes in the agriculture and urban sectors.

2.03 The Third Five Year Economic Development Plan (TFYP), 1972-1976, is addressed to these problems. The Plan aims at a more moderate but better balanced growth to ensure greater domestic financial stability, a more favorable balance of payments position and improved income distribution and food production. These objectives are to be attained by adopting measures to increase the agriculture growth rate from the 3% p.a. of the past to 4.5% p.a. and reduce the growth rate of manufacturing from 20% p.a. to 13% p.a. Exports, projected in the TFYP to increase by no less than 20% p.a., are expected to continue to be a major source of financing for domestic investment and growth. GNP would increase by 8.6% over the Plan period.

2.04 More significant than these quantitative targets are the shifts in emphasis in major policies initiated with the TFYP. Government policy for agricultural development is directed toward modernization of this sector, the share of which in total planned investment is expected to treble, over that of the Second Plan, 1967-1972. In order to develop more fully the still unexploited agricultural potential, it is proposed to expand irrigation, mechanization and the use of higher-yielding varieties of crops, accelerate land consolidation and re-arrangement and promote the welfare of the rural population through community development schemes. The government's policy

for industrial development calls for moving into intermediate and capital goods, especially metals, machinery, transport equipment, petro-chemicals and ship-building, both because light industries are facing increasing foreign competition and slackening domestic demand and because heavier industries are expected to increase the net foreign exchange earnings from exports.

2.05 The success of these policies requires the mobilization of all available resources, especially human resources. Further development could be handicapped by a skill gap that would place Korea at a disadvantage in comparison with other countries by adversely affecting productivity and costs and her competitive position in the world market.

Manpower Requirements

2.06 One of the main sources of growth and transformation has been the quality of the labor force (para 2.01) which has adapted remarkably well to the socio-economic changes of the 60's. This labor force is relatively young and well educated: about half is under 35 years of age and of the total employed in 1966 (the year of the latest census), 38% had received primary education, 29% secondary education and 6% post-secondary education.

2.07 Unemployment has decreased from 8% of the labor force in 1964 to some 4.5% in 1971 and is expected to stabilize at around 4% in the mid 70's. The occupational distribution of employment, reflecting increasing demand for skilled manpower, has changed considerably from 1965 to 1970 with the employment of technical and professional workers increasing at 15.5% p.a., of craftsmen at 8.8% p.a., and of administrators and managers at 7.6% p.a. while total employment growth was averaging 2.4% p.a.

2.08 Against this background and on the basis of the policies summarized in paras. 2.03 - 2.04, the government estimates that total employment will grow from 10 million in 1970 to 16 million in 1986 (or by 3% p.a.) and that productivity will increase at some 5% p.a. In the non-agricultural sectors, employment will increase at about 7% p.a., while in agriculture a slow annual decrease of about 1% in total employment needs to be accompanied by an improvement of the educational profile of the rural population in order to sustain the modernization policy (para. 2.04). It is also estimated that education output requirements over the period 1972-1986 would be as follows (Annex 1):

Level of education	Requirements (1972-1986) due to (in thousands) Expansion	Replacement	Total
University	400	200	600
Junior College (or equivalent)	800	100	900
High School	1,100	700	1,800
Middle School	1,700	1,100	2,800

2.09 A comparison carried out by Bank staff between these estimated needs and the projected outflows of the education system (Annex 1) as well as the more detailed forecasts made by the Korean Ministry of Science and Technology (MOST) for certain major occupational categories (Annex 2 and Chart 1) show that the imbalances are becoming critical. In general terms, supply is expected to exceed requirements at the university and general high school level while output at the sub-professional level will meet only half of the needs projected over the 1972-86 period and the present shortage of craftsmen may become more severe in the near future. At the professional level, there could be surpluses of liberal arts and social science graduates and also of certain categories of engineering and natural science graduates but shortages will continue to exist in some specific categories, such as production engineers and secondary school teachers, at least until the early 80's.

2.10 In addition to removing these quantitative imbalances, further growth and transformation of the economy require an improvement in the quality and flexibility of labor to accompany the increases in the amount of capital per worker planned for both agriculture and industry 1/ and the greater mobility between sectors and levels of employment. This improvement is necessary at all levels, especially in professional categories requiring a scientific and technological background and training in modern production methods.

III. THE EDUCATION AND TRAINING SECTOR

Evaluation of the sector

3.01 The Korean education and training sector is described in the Appendix and the basic data are given in Annexes 3 and 4 and Charts 2, 3 and 4. In summary, the sector has a sound basis for development: (a) comparatively high enrollment ratios at all levels (see Comparative Education Indicators); (b) high progression and low dropout and repetition rates; (c) high proportion

1/ On average, the capital stock per worker is increasing by 7% p.a.

of students in vocational and professional courses at the high school (nearly 50%) and university (about 60%) levels; and (d) an expanding number of accelerated and in-plant training programs supplementing the formal school system.

3.02 There are, however, certain weaknesses which affect the system's capability to meet urgent manpower requirements and long-term socio-economic needs. In addition to insufficient outputs at the craftsmen and technician levels and to enrollment re-adjustments required in certain professional courses (para 2.09), the system suffers from outmoded curricula, the inadequate pedagogical training of about half of the middle and high school teachers and the lack of functionally-designed and well-equipped workshops and laboratories. These deficiencies affect adversely the quality of instruction at all levels because teaching tends to be too theoretical. As a result, even where curricula appear to be well balanced, the orientation and content of instruction can be distorted in the actual classroom situation.

3.03 Cooperation among the Ministries and agencies involved in education and training 1/ and between the sector and industry has recently improved considerably but is not yet fully effective. It must be strengthened if the system is to become an integral part of the programs to accelerate the transformation of industry and agriculture. Within this context the Korean Ministry of Education has started to give more emphasis to the practical and attitudinal content of instruction than to formal examinations. Further improvement entails the modernization of curricula and facilities and the rationalization and consolidation of resources at all levels, especially in vocational and professional courses in high schools, junior colleges and universities.

3.04 Inequalities in educational opportunity still exist in high and higher education as between rural and urban areas but are being reduced. Female participation, now less than 40% in high school and 24% in higher education, is improving, as middle school enrollment expands.

Education Policy and Strategy

3.05 The objectives of Korean educational development are indicated in the TFYP, 1972-76, and in the Comprehensive Long-Range Education Plan (CLEP), prepared in 1970. The CLEP, although never formally adopted by government, still provides broad guidance for long-term developments. Emphasis is on reform, redirection and improvement programs and on the appropriate equipping and efficient utilization of the physical and human resources at the disposal of the sector. Expansion in high school and post-secondary education is envisaged only to meet proven skill needs (para 2.09).

1/ These include the Ministry of Education, the Ministry of Agriculture, the Ministry of Social Affairs, the Ministry of Science and Technology, and the Korean Education Development Institute (KEDI).

3.06 Priority is given to: (a) expansion and improvement of sub-professional training; (b) improvement of high school education, coupled with expansion of accelerated and in-plant training; (c) rationalization and consolidation of university education with expansion restricted to clearly identified manpower needs; and (d) movement towards a universal basic education of nine years 1/. Projections made by Bank staff on the basis of CLEP estimates and summarized in Annex 3 and 4 indicate the quantitative targets to meet these objectives. In particular, the projections show: (i) a progressive increase in the proportion of enrollment in junior colleges as compared with universities; (ii) reduction in the growth of high school enrollment but with increased use of diversified curricula and the consolidation of agricultural and technical high schools as a comprehensive education system gains ground; and (iii) attainment of universal basic education of nine years by 1986. In addition, student: teacher ratios are expected to be gradually improved throughout the sector and government participation is planned to increase in the more costly vocational and higher education fields.

3.07 The plans to reach these targets have not yet been fully programmed. However, the government has prepared an investment program which is directed toward meeting the priority areas listed in the previous paragraph as follows:

(a) a number of vocational higher schools (grades 10-14) will be converted into two-year post secondary (grades 13-14) institutions, thus increasing enrollment capacity and output at the sub-professional level;

(b) selected agricultural and technical high schools (grades 10-12) are to function as "demonstration centers" in which courses are conducted in collaboration with the extension service and local industries respectively and, at the same time, more centers for accelerated vocational training are being established;

(c) enrollment in university education will continue to be controlled. Improvements will place emphasis on selected higher education institutions to be developed on a provincial basis in order to promote relevance to national and local needs and better use of resources; and

(d) the content of primary teacher training (grades 13-14) is being improved to prepare the teachers for a more effective role in community development.

1/ The reform of basic education (grades 1-9) is being assisted by USAID which has sponsored a major study of this level of education and helped in the establishment of KEDI (see Appendix paras 2-3).

3.08 The proposed second education project would assist all the aspects of this program except those related to the establishment of more accelerated training centers (which are helped by ADB) 1/, by providing appropriate facilities and equipment and by promoting relevant curricula, organizational and teacher education improvements. The project would also assist some aspects of a second stage of the planned reforms. These reforms would give priority to: (i) creation of a network of post-secondary institutions for sub-professional training; (ii) further expansion of accelerated and in-plant training; (iii) conversion of a number of existing small agricultural, technical, commercial and academic high schools into diversified or comprehensive schools; (iv) further improvement in university education to include health and management education.

Financing educational development

3.09 Educational institutions are classified into: (a) national institutions, financed entirely by the central government; (b) public institutions financed jointly by the central and local governments; and (c) private institutions financed by private sources with minor assistance from the public authorities. Details of the system of education finance are given in the Appendix, paras 30-37, and Annex 5. Total educational expenditure has increased very rapidly over the last five years (28% p.a. in monetary terms, or some 16% p.a. in real terms) and is now Won 178.5 billion or 5.3% of GNP (1972 estimate). Public expenditure on education (Won 125.8 billion) is equivalent to 16.7% of total expenditure by central and local governments, with public recurrent expenditure on education absorbing some 22% of total public recurrent expenditure.

3.10 A projection of future education expenditure (Annex 6), based on the estimates of enrollment and teacher requirements summarized in Annexes 3 and 4, assumes, conservatively, but on the basis of discernible short-term developments, that the present low unit recurrent costs will increase steadily in real terms to reach US$60 in primary education (US$28 in 1972) 2/, US$140 in secondary (US$68), US$600 in post-secondary education (US$285) by 1986, in order to reflect the improvements described in paras 3.05 - 3.07. Although expenditures projected beyond 1976 are approximate, the projection shows that the share of recurrent education expenditure on GNP and on public finance may decrease from 1976 to reach 5% and 18.5%, respectively in 1986 (5.4% and 24% in 1976).

1/ The Asian Development Bank.

2/ Comparable figures are:

	(US$ equivalent)	
	Malaysia, 1970	Thailand, 1970
Primary level	50	20
Secondary level (General)	70	60
Post-Secondary level	1,000	380

3.11 Financially, the main limiting factor to further reforms would be the size of the capital budget (more than US$2 billion equivalent) 1/ required from 1972 to 1986 to support expansion in enrollment mainly at the middle school level; it would probably be necessary to extend double-shift working at the primary and middle levels more than presently contemplated or, alternatively, to postpone somewhat the date for the achievement of universal basic education of nine years (para 3.06).

IV. THE PROJECT

Objectives

4.01 The proposed project would assist an investment program aimed at: (a) improving agricultural and technical high schools; (b) expanding and improving higher schools/junior colleges for agricultural, technical, fishery and nursing training; (c) strengthening university education in the fields of agriculture, engineering, natural sciences and merchant marine (d) expanding and improving teacher education; and (e) completing the programming of planned reforms in the fields of health and management education. It would consist of:

(a) Equipment for and extensions, where required 2/, to the institutions listed below:

1/ This estimate is based on the assumption that 50% of the new places in primary, middle and general high school will be used on a double shift basis. It is also assumed that double shift working in vocational high schools will not be possible due to evening and accelerated courses. The estimate includes the capital cost of the proposed project as well as the costs for the completion of the first education project assisted by the World Bank Group.

2/ The civil works included in the project entail primarily remodelling of existing institutions to provide functional workshops and laboratories and a more effective use of the already available facilities.

Type of Institution	Approximate number of student places		
	Existing	Additional	Total
Vocational High Schools			
14 Agricultural High Schools	9,000	-	9,000
18 Technical High Schools	26,300	1,500	27,800
Vocational Higher Schools/ Junior Colleges			
2 Agricultural Higher Schools	720	-	720
1 Technical Higher School	1,200	-	1,200
3 Fishery Higher Schools	2,560	240	2,800
4 Schools of Nursing	1,120	80	1,200
University			
3 Colleges of Agriculture	1,700	-	1,700
8 Schools of Engineering)	11,000	1,000	12,000
9 Schools of Natural Sciences)			
1 Merchant Marine College	720	80	800
Teacher Education			
10 Junior Teacher Colleges	8,800	-	8,800
12 Colleges of Education	8,200	3,000	11,200
Totals	71,320	5,900	77,220

(b) The cost of specialists' services and fellowships for: (i) a pre-investment study of health education; (ii) a pre-investment study of management education; and (iii) staff development.

Project items

4.02 Vocational High Schools. The proposed improvement of selected vocational high schools (grades 10-12) would support government policy to relate the education system to manpower needs and to use existing institutions as integral parts of agricultural and industrial programs (paras 2.09 and 3.03). As the existing accelerated training programs, including those being expanded with the assistance of ADB 1/ (para 3.08), are meeting only about

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1/ The project assisted by ADB includes five vocational institutes with a planned output of some 3,000 p.a. There are already about 160 vocational and in-plant programs which are operated under the supervision of the Office of Labor Affairs (OLA) and have a total of about 35,000 p.a. (Appendix, paras 26-28). Developments in non-formal training for agriculture are described in Appendix, para 29. These developments, as well as the expansion of non-formal industrial training to reach an enrollment of some 60,000 in 1976 (Appendix, para 28), require increased coordination with the formal education system (para 3.03).

one third of the total need for skilled workers, the project would assist a number of agricultural and technical high schools by improving curricula, teaching methods and facilities and permit the use of the school premises for short-term courses in addition to their regular programs.

4.03 A number of the existing 115 agricultural high schools has been selected as "demonstration schools" to be operated in collaboration with the Office of Rural Development (ORD) of the Ministry of Agriculture. They are located in areas for which the TFYP proposes major agricultural investments (para 2.04) and, in addition to their regular three-year program, give training to adult farmers. In the regular program, 70% of the time is allocated to agricultural subjects with emphasis on farm practice and two months in each year are spent in "on'the-job" training. Where needed, the best graduates may receive financial assistance to establish their own farms.

4.04 The first project is providing assistance to seven agricultural high schools with a total of 4,400 student places. The second project would improve the facilities of 14 additional schools; 11 of these schools are already "demonstration schools" and the remaining three will become "demonstration schools" in March, 1973. The project schools at Hongcheon, Namweon, Jangseong, Seongju, Sacheon and Changryeong do not have adequate farming land. Although the amount of land required varies from school to school, the minimum needed is estimated at five ha. During negotiations, the government confirmed its intention to provide adequate land for these schools not later than January 1, 1975.

4.05 A new curriculum is being introduced as part of the improvement of technical education which started with the first education project assisted by the Bank Group (para 1.02); it provides for an initial period of basic training in a trade (e.g., mechanical engineering) followed by two semesters of specialized training within the trade (e.g., as sheet-metal workers or machinists), and by a period of supervised specialized training "on the job" (paras 3.03 and 3.07).

4.06 Full benefit from these changes is hampered by inadequate laboratory and workshop accommodation and equipment: in many schools from 80% to 90% of the needed equipment is either lacking or unsuitable. The government plans to improve only about one-half of the country's 59 technical high schools (para 3.08). The project would provide the required equipment for 18 such schools. Nine technical high schools with a total of 10,000 student places are being improved (six) or replaced (three) under the first project, making a total of 27 schools able to implement fully the new type of training.

4.07 These schools have been selected for their economic viability and development potential on the basis of (a) present and projected industrial development in their respective vicinities; (b) existing cooperation with local industries, particularly in regard to evening courses; and (c) recent employment records of their graduates. Together, the 27 schools would have

an output of some 12,000 graduates per annum from the regular three-year program and about the same number from part-time courses and would thus help to meet the need for craftsmen and junior technicians (para 2.09).

4.08 Technical and agricultural high schools not covered by the first and second education projects are either uneconomical in size or located in areas with no immediate prospects for development; a number of them would be converted to high schools with diversified curricula in a later stage of the educational reform (para 3.08).

4.09 Vocational High Schools/Junior Colleges. Projections of manpower requirements indicate an acute shortage at the sub-professional level (para 2.09). Plans to meet this situation by the creation of a network of junior colleges (para 3.08) have been only partially prepared; the project would therefore assist those existing institutions that have been included in an interim program. Within this framework, the project would assist (a) six higher schools1/ (grades 10-14) that are to be converted to two-year post-secondary institutions (grades 13-14); and (b) four schools of nursing (grades 13-15) where training is related to the needs of rural areas. Provision would also be made for a pre-investment study to chart further improvement in both para-medical and medical training. The government is using its own resources for the studies required to complete the programming of expansion and improvement of other types of sub-professional training.

4.10 Five higher schools with a total number of 5,700 student places are being improved and converted into two-year post-secondary institutions as a part of the first project. The second project would provide equipment and extensions for an additional six higher schools, including two agricultural higher schools, one technical higher school, and three fishery higher schools2/. Conversion would increase the output from 900 to some 2,200 graduates per year and assist the post-secondary higher schools/junior colleges of Korea to meet about 40% of the estimated need in the late 70's. The conversion would open the higher schools to all high school graduates and thus improve the equality of educational opportunity and generally ensure a better level of entry than under the present system. In the case of the fishery higher schools, however, the two-year post-secondary program would be followed by one year of apprenticeship at sea before full certification is accorded to students enrolling in the deck and engineer officers' courses directly from general high schools. During negotiations, the government confirmed that the reorganization would commence by March 1, 1974 for the

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1/ See Glossary.

2/ The deep-sea fishing industry of Korea (now sixth in the world in terms of export) is growing very rapidly and becoming one of the major sources of foreign exchange. It requires an increasing number of well-trained high and middle level manpower. MOST estimates that the demand for deck and engineer officers of fishing vessels will be about 500 p.a. during the TFYP, 1972-76.

technical and agricultural higher schools included in the project and by March 1, 1975 for the fishery higher schools. 1/

4.11 The output of the 23 existing schools of nursing (about 1,300 p.a.) falls short of the estimated needs (some 2,500 p.a.) but it exceeds the present absorptive capacity of the public health system. However, about one-third of the graduates emigrate. The project would be limited to equipment for four schools in which training emphasises practice in rural clinics and health centers; the output from these schools (about 350 p.a.) would be easily absorbed as a part of the program to improve the productivity and welfare of the agricultural population (para 2.04). The project schools would provide a pattern for other schools of nursing following the proposed pre-investment study on health education (para 4.09).

4.12 Universities. University development has been largely uncoordinated; there are 71 universities with a total of 160,000 students, two-thirds of whom are in private and often small institutions. The government has introduced enrollment controls through a system of "entry quotas" by department, broadly related to manpower needs, and has established minimum staff and facility requirements for maintaining acceptable standards. Enrollment control has been successful but a survey conducted in 1971 indicated that the science and technological colleges had on average less than 30% of the special facilities needed and the majority had only 10-20% of the equipment required.

4.13 A plan prepared in 1972 aims at: (a) improving the quality of selected universities, giving priority to Seoul National University (SNU) and to national universities in the provinces; (b) emphasizing relevance to regional needs; (c) changing the present "entry quota" system by department to a quota system by broader fields, thereby achieving greater flexibility while continuing enrollment control. The initial program would comprise: (i) strengthening of selected colleges of agriculture, engineering, natural sciences and merchant marine with only a modest expansion in enrollment; and (ii) improvement coupled with expansion of teacher education. As a part of the overall strategy to promote quality improvements and reorientation of the education sector toward a more practical content, the project would assist implementation of the first phase of this plan, by providing equipment for and extensions to science, technological and teacher colleges of 16 universities (Annex 7) and help the preparation of the second phase by providing pre-investment studies in the fields of health and management education.

4.14 Three colleges of agriculture are to be equipped and remodelled under the project. According to the plan (para 4.13), the SNU college of agriculture will maintain a central function in higher agricultural education

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1/ This difference in date is justified because the revision of the syllabi of the technical and agricultural higher schools was started in connection with the first education project while the studies for the reorganization of the fishery higher schools have begun only very recently.

and accord a specialist service support to the provincial colleges. The colleges of agriculture of the National Universities of Gyeong Sang and Jeon Bug function in differeing ecological areas and emphasize training in animal production and high yielding rice varieties respectively, two fields of great significance for increasing food production (para 2.04).

4.15 The eight colleges of engineering and the departments of natural sciences of the nine colleges of liberal arts and science included in the project would have a total of about 12,000 student places, approximately one fourth of the 1971 enrollment in these fields. About 1,000 of these places would be for expansion in those areas, such as production engineering, for which there is a proven need. The colleges have been selected according to the plan outlined in para 4.13 and are expected to become centers for high quality engineering and science education. Their engineering curricula are being revised to emphasize problem solving and include courses on engineering economics. During negotiations, the government confirmed its intention to utilize equipment more effectively by requiring the project universities to establish "common facilities" for those items which will be used also for the skill training of the students of the colleges of education enrolled in technical teacher training programs and that, within two years from signing of the Credit/Loan agreement, it will inform the Bank on its proposals for the establishment of such facilities.

4.16 The merchant marine college has recently been relocated and expanded to 800 student places to meet the need for ship officers and engineers generated by the growth of the Korean merchant navy. 1/ One year of the four years program is spent at sea, partly on the college training ship and partly on commercial vessels. The project would provide equipment for updating navigation and marine engineering instruction in line with modern techniques.

4.17 Teacher Education. The implementation of the education policy described in paras 3.05 - 3.08 requires an improvement of teacher education at all levels (para 3.02). In particular, the primary level program needs re-orientation to instruct teachers in modern methods, such as the use of audio-visual aids and programmed learning, and to prepare them for their wider responsibilities in community development (para 2.04). At the middle and high school levels, improvement and re-orientation need to be accompanied by an expansion in the output of colleges of education. Since even after expansion these colleges would be able to meet only about one-half of the projected requirements, administrative measures should be taken to give pedagogical training and teaching accreditation to the increasing number of graduates from other colleges (agriculture, engineering, liberal arts, etc.) who wish to enter the teaching profession.

1/ The TFYP envisages an investment of nearly Won 50 million (US$350 million) to increase the ocean vessels capacity from 797,000 gross tons in 1971 to 2,154,000 gross tons in 1976. MOST estimates that the need of the merchant navy only for ship and engineer officers would be 300 p.a. during 1972-76 and will reach 500 p.a. during 1982-86.

4.18 The project would provide equipment for 10 junior teacher colleges for primary teacher training (grades 13-14). The output of these colleges (4,200 p.a.) would meet about 70% of the estimated needs and the balance would be supplied by the remaining junior teacher colleges which already have adequate facilities. During negotiations the government confirmed its intention to: (a) review curriculum content and its application to meet the objectives indicated in the previous paragraph; (b) reorganize practice teaching so that each trainee would have at least four weeks of actual teaching; (c) inform the Bank on the outcome of curriculum review and reorganization of practice teaching within two years from signing of the Credit/Loan agreement.

4.19 The 12 colleges of education (Annex 7) to be equipped and expanded under the project would increase their number of student places from 8,200 to 11,200 or to about 40% of the 1977 projected total for the 51 colleges of education in Korea. As the total output from colleges of education is expected to fall short of needs (para 4.17), the government should promote other sources of supply and, to this end, during negotiations has agreed that within one year from signing of the Credit/Loan agreement, it will send to the Bank its proposals to: (a) allow students to transfer into teacher education from other colleges; (b) organize special courses in pedagogy for degree graduates of other colleges entering the teaching profession; and (c) grant such graduates the same status as the graduates from colleges of education.

4.20 Pre-investment studies. A pre-investment study is required to recommend improvements in management education. There are 40 universities offering business administration or management courses to some 23,000 day students and to practicing managers attending evening classes. In addition, a number of public and private organizations arrange non-formal management programs. Differences in quality are wide and some of the courses are not relevant to the needs of Korea. The project would provide for a team of experts (15 man-months) to undertake a survey of management education, plan rationalization, determine investment priorities and prepare possible projects.

4.21 A pre-investment study is also needed for developments at all levels of medical and para-medical training (para 4.09). A team of experts (about 20 man-months) would review the existing training provisions 1/ and determine investment requirements and possible projects to better relate the health education and the health care systems.

4.22 Staff and staff development. The vocational high and higher schools included in the project are properly staffed and there are adequate provisions for the training of technical and agricultural instructors. Under the technical assistance component of the first education project, instructors already in service are receiving short-term courses in teaching methods and in the use and maintenance of equipment. Furthermore, practicing extension agents and personnel from industry give part-time courses in the agricultural and technical high and higher schools.

1/ There is an enrollment of some 16,000 in universities and some 8,000 in sub-professional courses.

4.23 To assist curricula development and ensure proper use of equipment in the colleges of agriculture, engineering, natural sciences, and education (paras 4.14, 4.16, 4.19) a sum of US$300,000 would be included in the project cost for staff development. It would be used for fellowships abroad for staff and, where required, to invite foreign specialists to Korea. During negotiations the government has agreed that, within one year of the signing of the Credit/Loan Agreement, a staff development plan for the project universities will be sent to the Bank for review and that this plan will include provision for the organization of workshops and seminars on the operation and maintenance of equipment.

V. PROJECT COST, FINANCING, AND IMPLEMENTATION

Cost Estimates

5.01 Construction cost estimates have been derived from recent school and university building costs in Korea. The average cost per square meter is estimated at US$70 which compares well with construction costs in other Asian countries. The schedules of accommodation are functional and economical, e.g., utilization factors for the workshops and laboratories of the high and higher technical schools are estimated at about 75% based on a 40-hour week; this utilization factor is high but allows for a sufficient margin of flexibility in time-table scheduling. Estimates of equipment costs are based on preliminary equipment lists prepared by the Korean authorities for each project institution and reviewed during appraisal. These estimates, which take account of the equipment already available in the institutions, are reasonable. The estimated costs and foreign exchange component of the various parts of the project are given in Annex 8 and summarized below:

	Won (billion)			US$ (million)			% of
	Local	Foreign	Total	Local	Foreign	Total	Total
1. Vocational High Schools							
Agricultural	0.97	1.44	2.41	2.43	0.60	6.03	8.6
Technical	2.81	4.22	7.03	7.02	10.24	17.57	25.0
Subtotal	3.78	5.66	9.44	9.45	14.15	23.60	33.6
2. Vocational Higher Schools/Junior Colleges							
Agricultural	0.24	0.21	0.45	0.60	0.52	1.12	1.6
Technical	0.32	0.32	0.64	0.80	0.81	1.61	2.3
Fishery	0.31	0.51	0.82	0.77	1.27	2.04	2.9
Nursing	0.23	0.25	0.48	0.57	0.63	1.20	1.7
Subtotal	1.10	1.29	2.39	2.74	3.23	5.97	8.5
3. Universities							
Colleges of Agriculture	0.11	0.74	0.85	0.27	1.85	2.12	3.0
Colleges of Engineering	0.85	2.85	3.70	2.14	7.13	9.27	13.2
Colleges of Science	0.61	3.04	3.65	1.52	7.61	9.13	13.0
College of Merchant Marine	0.04	0.36	0.40	0.10	0.89	0.99	1.4
Subtotal	1.61	6.99	8.60	4.03	17.48	21.51	30.6
4. Teacher Education							
Junior Teacher Colleges	0.22	0.37	0.59	0.54	0.94	1.48	2.1
Colleges of Education	1.01	1.83	2.84	2.53	4.57	7.10	10.1
Subtotal	1.23	2.20	3.43	3.07	5.51	8.58	12.2
5. Specialists Services and Fellowships	0.04	0.16	0.20	0.10	0.39	0.49	0.7
6. Contingencies							
Unforeseen Events	0.77	1.17	1.94	1.93	2.92	4.85	6.9
Price Increase	0.77	1.32	2.09	1.93	3.29	5.22	7.5
Subtotal	1.54	2.49	4.03	3.86	6.21	10.07	14.4
TOTAL	9.30	18.79	28.09	23.25	46.97	70.22	100.0

The estimated costs by various categories of expenditure are summarized below:

	Won (billion)			US$ (million)			% of
	Local	Foreign	Total	Local	Foreign	Total	Total
1. Civil Works							
(i) Site development	0.40	0.05	0.45	1.02	0.11	1.13	1.6
(ii) Buildings	4.58	1.14	5.72	11.44	2.86	14.30	20.4
(iii) Professional Fees	0.45	0.05	0.50	1.12	0.13	1.25	1.8
Subtotal	5.43	1.24	6.67	13.58	3.10	16.68	23.8
2. Furniture	0.36	0.09	0.45	0.90	0.23	1.13	1.6
3. Equipment	1.92	14.82	16.74	4.81	37.04	41.85	59.6
4. Specialist Services and Fellowships							
(i) Health Education Study	0.01	0.03	0.04	0.02	0.09	0.11	0.2
(ii) Management Education Study	0.01	0.02	0.03	0.02	0.06	0.08	0.1
(iii) Staff Development	0.02	0.10	0.12	0.06	0.24	0.30	0.4
5. Contingencies							
(i) Unforeseen Events	0.77	1.17	1.94	1.93	2.92	4.85	6.9
(ii) Price Increase	0.77	1.32	2.09	1.93	3.29	5.22	7.4
TOTAL	9.30	18.79	28.09	23.25	46.97	70.22	100.0

5.02 Contingency allowances (Annex 9) add 10% for unforeseen factors to the cost estimates of site development, construction, furniture and professional fees and 7% to the equipment estimates. Foreign exchange costs of 1972 are expected to increase by 5% p.a. and local costs by 6% p.a.; therefore, an additional 8.7% contingency is included. For the entire four-year period of project implementation (Chart 5), all contingencies would be equivalent to about 17% of the basic cost of the project before adding contingencies.

5.03 The foreign exchange component has been calculated as follows: (a) site development, 10%; (b) construction, 20%; (c) furniture, 20%; (d) equipment, 90%; (e) professional fees, 10%; and (f) specialists'

services and fellowships, 80%. Including contingencies, the foreign exchange component is estimated at about US$47 million or 67% of the total project cost. This percentage is high because the project is for improvement of existing institutions (para 4.01) rather than for expansion of enrollment and therefore entails a large amount of equipment and only a limited amount of civil works (para 5.01).

5.04 As the project would assist schools already in operation, it would generate only very little additional recurrent expenditure, about Won 3.5 billion p.a. or 1% of the estimated total recurrent expenditure on education projected for 1976.

Financial Plan

5.05 The financial plan proposed by the government provides for World Bank Group assistance to finance the costs of equipment, specialists' services and fellowships only, with the costs of civil works, furniture, professional fees and local handling and transportation of equipment to be financed from the government budget. By major components, the various parts of the project would be financed as follows:

	US$ (million)		
	Republic of Korea Government	World Bank Group	Total
Vocational High Schools	11.14	12.46	23.60
Vocational Higher Schools/ Junior Colleges	3.35	2.62	5.97
Universities	4.50	17.01	21.51
Teacher Education	3.63	4.95	8.58
Specialists' Services and Fellowships	0.10	0.39	0.49
Contingencies	4.50	5.57	10.07
TOTAL	27.22	43.00	70.22

This financial plan is satisfactory. The costs of civil works, furniture and local handling and transportation of equipment, (US$27.2 million) and their estimated foreign exchange component (US$4 million) are low and can be met by the government without curtailing expenditure for other activities and without over-burdening the educational budget.

Implementation and Procurement

5.06 The existing Project Unit in the Ministry of Education (MOE) would be responsible for the overall supervision of the project and liaison with the Bank. The Project Unit would be strengthened to supervise adequately the preparation of designs for civil works and of equipment lists, execution of construction and delivery and installation of equipment. In particular, during negotiations, the government has agreed that within six months from signing of the Credit/Loan agreements, at least four architects, five engineers and ten technical and agricultural education specialists, trained by the technical assistance team provided as a part of the first project (para 4.22) will be appointed to the Project Unit. A panel of equipment specialists has been already established to assist in the completion of the lists for the universities included in the project (Annex 10).

5.07 Civil works would follow the space standards patterned on those of the schools of the first project for similar institutions or be acceptable to the Bank in all other cases. Similarly, equipment lists for the technical and agricultural high and higher schools would be based on the master lists of the first project for similar institutions. In all cases, designs for civil works and lists of furniture and equipment would be reviewed by the Bank before procurement.

5.08 Procurement of equipment would follow Bank guidelines for international competitive bidding. It is expected that most of the equipment contracts would be awarded to foreign suppliers. Domestic manufacturers are becoming competitive in selected areas of simple science equipment; after international competitive bidding, they may be awarded contracts for about 5%, or US$2 million equivalent, of the total estimated equipment cost. Preferred domestic manufacturers would be allowed a preferential margin of 15%, or the existing customs duty, whichever is the lower, over the c.i.f. price of competing imports. Customs duties on most of the items to be procured under the project are higher than 15%. Contracts for civil works and furniture would be awarded on the basis of competitive bidding following national advertising; this is justified because of the small size of the contracts involved at each institution and the difficulty in "packaging" them to attract foreign bidders.

5.09 Satisfactory implementation of the project depends on the timely preparation of design and equipment lists and on an adequate phasing of procurement. As government procurement is the responsibility of the Office of Supply, Republic of Korea (OSROK), the measures described in para 5.06 to strengthen the MOE project implementation capability, need to be complemented by actions to (a) reinforce OSROK and (b) improve cooperation between OSROK and the MOE.

5.10 In particular, the foreign procurement section of OSROK is not adequately staffed to handle the procurement of the equipment included in the project. During negotiations, the government has agreed that within

nine months of signing of the Credit/Loan Agreement, six additional procurement specialists will be employed in the foreign procurement section of OSROK for the purposes of the project and an implementation schedule jointly agreed upon by the MOE and OSROK will be forwarded to the Bank for comments.

Disbursements

5.11 The proposed credit of US$20 million and loan of US$23 million would finance 90% of the foreign exchange component and the ex-factory costs of equipment contracts awarded to domestic manufacturers after international competitive bidding. Bank Group financial assistance would be equivalent to about 60% of the total project cost and would be disbursed to meet:

(a) the c.i.f. costs of directly imported equipment or the ex-factory cost of locally manufactured equipment;

(b) 70% of the total cost of imported equipment procured locally; and

(c) 100% of the foreign expenditure cost of specialists' services and fellowships.

The above percentages would be adjusted as necessary to spread disbursements over the implementation of the project and to ensure full disbursement. The estimated disbursement schedule is shown in Annex 11 and the credit/loan and project summary is given in Annex 12. The Bank loan will be disbursed only after full disbursement of the IDA credit.

VI. BENEFITS AND JUSTIFICATION

6.01 The contribution of the project to economic growth is indicated by its role in meeting manpower requirements, both quantitatively and qualitatively. In the late 70s and early 80s, the institutions assisted by the Bank would supply some 25% of the estimated annual manpower needs for craftsmen, 20% for subprofessionals, 30% for engineering and science graduates, 70% for agricultural graduates and primary school teachers and 40% for college of education graduates. With improved facilities, curricula and teaching methods, the contribution of training to productivity would increase. A survey conducted by the Research Institute for Industrial Development of Korea indicates that, on average, (i) a worker gains 20% in efficiency from training; (ii) training brings about a significant reduction in the rate of defective work (10% to 40%, depending on the industry); and (iii) the accident rate among trained workers is about half of that among untrained workers.

6.02 The project would help reduce economic and social disparities by equipping institutions (70% of the project student places) in small towns and rural areas. This would improve educational opportunity and social mobility because, as shown by a recent wage survey in Korea, there is a positive correlation between educational attainments and earnings. Income distribution effects can also be anticipated from the improvement of agricultural, nursing and primary teacher training programs in line with the plans to increase the welfare of the rural population.

6.03 The project would contribute to educational development by assisting the priority areas of a long-term plan consistent with Korean socio-economic needs. In particular, by providing well-equipped workshops at various education levels and reorienting teacher training, the project would promote the application of relevant curricula and support administrative and organizational improvements throughout the sector. As a result, education would have a more practical emphasis which would increase its capability of supplying outputs with the skills required by a modern economy characterized by increasing labor mobility among differing categories and levels of employment (para 2.10).

VII. AGREEMENTS REACHED AND RECOMMENDATION

7.01 During negotiations, agreement was reached with the government on the following points:

(a) the provision of adequate farming land to the agricultural high schools, the reorganization of the higher schools, the establishment of "common facilities" in the project university, the review of the primary teacher training program, and the administration measures to give pedagogical training and teaching accreditation to graduates from colleges other than the colleges of education entering the teaching profession (paras 4.04, 4.10, 4.15, 4.18 and 4.19);

(b) staff development and training in maintenance and operation of equipment for the project university (para 4.23);

(c) the strengthening of the Project Unit and of the foreign procurement section of OSROK and the preparation of a project implementation schedule jointly agreed by MOE and OSROK (paras 5.06 and 5.10).

7.02 The proposed project provides a suitable basis for a development credit of US$20 million on standard IDA terms and for a loan of US$23 million to the government of the Republic of Korea for a term of 30 years with a 10-year grace period.

THE EDUCATION AND TRAINING SECTOR

Structure and Management

1. The structure of education comprises (Chart 2):

   (a) compulsory Primary School (grades 1-6) for the 6-11 years age group;

   (b) Middle School (grades 7-9) for the 12-14 years age group, with entry open to all primary graduates since 1971;

   (c) High School (grades 10-12) for the 15-17 years age group, on a selective entry basis from middle school. This divides into (a) general high schools (with arts or sciences emphasis), and (b) industrial or vocational high schools which include technical, agricultural, commercial, fishery, comprehensive, and other vocationally-oriented institutions;

   (d) Higher Education of two levels, with competitive entry for high school graduates:

      (i) Junior College education with two or three year courses mostly in vocational subjects, including primary teacher training;

      (ii) University or College level with courses of four or six years duration.

2. This structure is now under review. A USAID-sponsored pilot experiment concerned with the feasibility of compulsory nine-year basic education is now in the planning stage. For this purpose, a para-government agency, the Korean Education Development Institute (KEDI), has been set up to formulate objectives, develop curricula and related materials, and review teacher education in terms of the education technologies the Institute may propose to promote the reform.

3. Educational planning requires improvement, being excessively dispersed among agencies. Each Bureau or Directorate at the MOE (Chart 3) is responsible for short-range planning and the programming of its subsector while the Economic Planning Board and the Ministry of Science and Technology draw up long-range development plans. The integration of the short-range programs and their relevance to the long-term socio-economic objectives and manpower requirements is not adequately carried out by the MOE Office of Planning and Management which reviews programs only when they have moved into the operational stage. In addition, the functions of KEDI have recently been broadened to embrace planning and development at high school level and to initiate or carry out research activities covering the entire education

system. The broad responsibilities given to KEDI could lead to overlap and duplication with the functions of the Bureaus of MOE.

Efficiency of the Sector

4. Education indicators show Korea in a highly favorable light for a country with a per capita income of about US$300. The literacy rate rose from 22% in 1945 to 85% in 1966. Enrollment ratios in 1971 were relatively high at all levels (Chart 4):

	Total Enrollment 000s	As % of Age Group	% Female	% in Private Education	T:P Ratio
Primary School	5,807	109%/1	48%	1%	1:56
Middle School	1,602	60%	39%	45%	1:39
High School	675	30%	35%	55%	1:29
Higher Education	199	8%	24%	68%	1:19
Total	8,283	62%			

/1 Including over-age students.

5. Promotion and completion rates are impressive at about 90% or more at each grade and level and reflect the high motivation of Korean students. Progression rates at 70% from primary to middle, 65-70% from middle to high school and 27% from high schools to higher education are good.

6. The distribution of students between academic (51%) and vocational and comprehensive (49%) high schools is satisfactory. At university level, the proportion of students in engineering (23%), agriculture and fishery (8%), sciences (15%) and medical studies (9%) is well balanced.

7. The majority of teachers, 90% in primary and 80% in secondary education, are qualified by government's standards but about half of those in secondary and higher education have little or no pedagogical training. In terms of the role primary teachers are expected to play in promoting community development, their training needs to be broadened.

Productivity of the Sector

8. If the productivity of the sector is measured in terms of the output's relation to existing and projected manpower needs, then the formal education system reveals serious quantitative imbalances as indicated in para 2.09 of the main report. More significant than these quantitative

imbalances is the deficiency of the output in terms of the required level of skills and attitudes. These weaknesses can be attributed partly to the content and orientations of curricula but more specifically to the theoretical and outdated teaching methodologies and techniques used.

9. These shortcomings are compounded by the over-sized classes and high teacher-pupil ratios (Annex 3) which make practical and small-group teaching difficult to organize and supervise even in those instances where the physical facilities are adequate. Consequently, one of the major tasks of KEDI is to consider the feasibility of introducing new educational technologies, such as programmed learning and team teaching, which might offset these deficiencies at reasonable cost.

Curricula and Facilities

10. The curriculum of the primary school has recently been revised and is again under review by KEDI. If it could be applied as designed, it would be a well-balanced curriculum with adequate allocation of time to science and practical learning related to the environment of the children. In the existing classroom situation, however, it can become rather sterile and theoretical.

11. This is true also of the middle school curriculum where the time allocated to the practical subjects (agriculture, handicrafts, elements of wood and metal work) may be increased by the school director from 15% to 35% of the weekly timetable to suit local conditions. Constructive application, however, is possible only with appropriate workshops and equipment and teachers specifically trained to use a practical approach to teaching.

12. The same comments can be applied to the general high school curriculum and its application in the existing 397 such schools with their 337,000 students and a teacher-pupil ratio of 1:31. The curriculum comprises a common core of subjects for all students complemented by a wide range of elective or optional areas. The inadequacy of the physical facilities and teacher skills limits the range of the elective subjects, particularly the practical options. Given the facilities, the general high school curriculum could be easily broadened to enable the school to convert to a wholly diversified or comprehensive type of secondary school.

13. Industrial or vocational high schools comprise a variety of types of vocational institutions which can be grouped in the following broad categories:

Type	No. of Schools	Enrollment Total	Female, & as %	Private Schools & as %	Graduates	No. of Teachers	Teacher Pupil Ratio
Technical	59	71,800	550 (1%)	33,100 (46%)	18,100	2,680	1:27
Agriculture	115	39,800	5,180 (13%)	2,500 (6%)	10,900	2,020	1:20
Fishery & Marine	10	4,200	280 (6%)	800 (18%)	1,200	200	1:21
Commercial	157	114,200	58,910 (52%)	80,100 (70%)	30,700	3,630	1:31
Comprehensive	107	55,100	20,400 (36%)	27,500 (50%)	12,800	2,040	1:27
Art	2	1,200	980 (83%)	1,200 (100%)	400	50	1:28
Other Vocational	50	23,800	7,120 (30%)	8,200 (35%)	6,000	990	1:24
In Grades 10-12 of Higher Technical Schools	-	15,500	610 (4%)	-	-	870	1:18
	500	325,500	94,030 (29%)	101,100 (50%)	80,170	22,320	1:29

(Totals may not add up due to rounding.)

14. The three-year courses in a variety of industrial skills in the technical high schools provide for eighteen months of basic training followed by twelve months of specialized training in the school and six months of supervised training in industry. The school curriculum provides for 40% of general education, 25% of technical theory and 35% of workshop practice. The general planning of courses and curricula is good but the lack of equipment prevents the schools from producing skilled workers who will eventually rise to lower supervisory positions.

15. The post-secondary higher technical schools or junior colleges train engineering technicians, fishery personnel, and nurses. There is need to expand the training for this level of skilled worker. Most existing higher schools offer five-year courses (grades 10-14) but better results and increased output can be achieved by re-organizing the schools to offer only the two-year post-secondary course (grades 13-14).

16. The principal objective of the 115 agricultural high schools (grades 10-12) with their 40,000 enrollment and about 11,000 annual output is to give farming skills to youths. They are successful in so far as 75% of the output enters farming. In the "demonstration" schools (para 4.06 of the main report), 70% of the total teaching hours are devoted to professional

agricultural education and half of this time to practice on the school farm. In addition, on-the-job training is carried out for two months annually. The resources (e.g., facilities, instructors) of the "demonstration" agricultural high schools are intended to be integral parts of the agricultural and community development programs. An official agreement exists between the Ministry of Education and the Ministry of Agriculture and Forestry for the operation of these schools.

17. The agricultural higher schools (grades 13 and 14) train middle level technicians. Some of the schools have not yet been reorganized to phase out grades 10-12. The balance between the general and professional subjects is 10-20% and 80-90% respectively in the two-year program, and 37-47% and 53-63% respectively in the five-year program. Each student must have more than 60 days on-the-job training during vacation.

Teacher Education

18. Primary teacher training is carried out in 16 junior teachers' colleges (grades 13-14) with an enrollment of some 12,500 and output of about 6,000. This output, with a limited expansion in the mid-70's, would be adequate to reduce the present 1:56 teacher-pupil ratio to 1:40 in 1986 with class size decreasing from an average of over 60 to about 45. School buildings are adequate. The curriculum is satisfactory but its application is limited by the lack of equipment and by the over-emphasis on music and the fine arts in the optional areas. In consequence, insufficient time is given to preparing the students in the practical areas of home economics, industrial arts, agriculture and health care which are more relevant to the teacher's expanding role in community development. In addition, trainees need to have more practice teaching.

19. Secondary teacher education is provided in 51 university colleges/departments of education and separate teachers' colleges. Enrollments were some 16,000 and the output 2,300 in 1971 and are planned to be about 25,000 and 6,000 respectively by 1986. This output would still be inadequate to meet the projected needs of middle and high school teachers (about 11,000-12,000 p.a.). Output could be raised to 7,000 in 1980 if some further expansion is initiated in 1976. This assumes (i) that the middle school, or the upper part of basic education if this becomes a nine-year course, will continue to be staffed by university graduates, and (ii) that the teacher:pupil ratios (Annex 4) would be improved to ensure better quality teaching, particularly of the technical and other practical subjects. The gap could be closed by a much more rapid expansion of teachers' colleges but this is not recommended: (i) the graduates of the other colleges (liberal arts and sciences, engineering, agricultural, etc.) can become teachers after pedagogical training; and (ii) if this job avenue was closed to the graduates mentioned above, there could be unemployment problems in these categories.

Higher Education

20. Of the total 199,000 enrollment in higher education in 1971 only 36,500 (18%) were enrolled in junior colleges. This includes 12,500 in the junior teachers' colleges; of the remainder, the majority (14,600 or 60%) were enrolled in science, para-medical, engineering and agricultural courses with an output of 8,180 and a further 5,330 (15%) with an output of 1,300 in three-year nursing courses. These figures suggest the need for a more rapid increase in junior college education than in universities.

21. Enrollments of 155,300 (excluding some 6,700 in graduate studies) in 71 university level institutions show 61% enrolled in the sciences, engineering, agriculture, fishery, marine and business studies:

Schools	Undergraduate Enrollment	As %	Output	Enrollment in Graduate Studies
Natural Sciences	9,510	6%	1,280	440
Engineering	36,590	23%	5,370	570
Agriculture and Forestry	10,690	7%	2,110	270
Fishery and Marine	2,150	1%	250	40
Economics and Business Studies	23,770	15%	5,470	1,470
Medicine and Pharmacy	13,980	9%	2,090	870
Teacher Education	15,870	10%	2,310	1,040
Political Sciences and Law	9,820	6%	1,910	380
Humanities and Others	32,990	21%	6,380	3,410

22. At the university level, the imbalances are mostly in the departments within the schools themselves rather than between the schools although enrollments in business studies and social science appear to be rather high in terms of likely long-term needs.

23. There are serious limitations in workshops, laboratories and equipment. It is estimated that the higher education institutions in engineering and sciences have less than 30% of the minimum norms and standards for facilities and equipment set by the MOE in 1970 (para 4.12 of main report). Until this is remedied, the over-theoretical approach to instruction will continue.

Non-Formal Training Activities

24. Since the formal system was unable to respond to the needs for craftsmen and technicians, various Ministries have increased their non-formal training programs.

25. In 1971 the MOE had 135 Higher Trade Schools for youths, with some 24,000 trainees, attached to primary, middle or vocational high schools. Courses are of 3 to 36 months' duration depending on the trade. The schools were considered successful and the establishment of another 45 such trade schools is under consideration.

26. A Vocational Training Bureau established under the Office of Labor Affairs has responsibility for skilled worker and lower technician training carried out in 105 vocational training institutes and 59 industrial firms (in-plant training). In 1971, some 35,000 persons received training but of this total only 1,400 (19% of the target figure) were at the lower technician level.

27. The courses vary in length from one or two weeks (refresher and supervisory courses) to one year (basic and correspondence courses). Students who pass the appropriate terminal examinations are licensed in one of four grades according to the level of instruction given. The Central Vocational Training Institute is responsible for the training of instructors who may serve either in schools, vocational training institutes, or industrial plants. The regular course of two years' duration (annual output 60) is supplemented by short refresher and other courses for more experienced students.

28. Targets for OLA activities during the planning period 1972-1976 are given below:

Category	1972	1973	1974	1975	1976	Total
Skilled workers a) public insts.	17,960	19,360	22,510	24,410	27,200	111,440
b) in-plant trg.	14,480	15,920	17,520	19,270	21,190	88,380
Technicians	60	390	720	1,110	1,110	3,390
Instructors	650	550	550	550	550	2,850
Supervisors	3,000	3,000	3,000	3,000	3,000	15,000
Correspondence	3,000	3,500	4,000	4,500	5,000	20,000
MOE Schools	600	720	960	1,200	1,440	4,920
Seminars	400	400	400	400	400	2,000
Totals	40,150	43,840	49,660	54,440	59,890	247,980

These planned developments have not yet been programmed.

29. The Office of Rural Development (ORD) of the Ministry of Agriculture and Forestry is responsible for the agricultural extension service and uses mass media (mainly radio) and over 6,000 agents for information dissemination and counselling. The Ministry of Agriculture is considering establishing a total of 130 farmer training centers, three of which are functioning. This plan and its relationship with the "demonstration schools" should be reviewed before making further investment as the agreement between the MOE and the ORD provides for farmer training courses to be conducted in the "demonstration schools" and a number of the other agricultural high schools are to be converted to middle or diversified high schools.

Education Finance

30. The system of financing. Educational institutions are classified into "national", "public" and "private" on the basis of their source of finance (para 3.09, main report). The central government finances the salaries of teachers in primary schools and in all national institutions above the primary level and 50% of the salaries in public secondary schools

with the other 50% being financed by the local authorities. The most recent comprehensive data on actual expenditure relates to the period 1967-70 when one-third of the resources devoted to education was derived from the private sector and two-thirds from the central and local authorities. The contribution of foreign assistance is, quantitatively, insignificant: about 1% of total expenditure. The share of the central government to total national effort for education has averaged about 57% and local authorities have provided an additional 10%; this distribution is likely to change somewhat in the future as secondary education expands.

31. Legislation requires the central government to earmark for primary and secondary education 13% of taxes on personal income and business profits 1/ and to distribute the funds as follows: (a) 11.5% for primary education expenditure on construction and materials; (b) 1.5% for secondary education to supplement the resources of the provinces. As universal primary education has been already achieved and the enrollment pressure is moving toward middle school, it would be advisable to allow a more flexible distribution of the funds.

32. Private sources cover the cost of education in private schools (Won 25.4 billion in 1970) as well as fees and textbooks and some materials in public and national schools. Fees, charged at all levels, are assessed and collected by parent-teacher associations in accordance with set guidelines which take account of parents' ability to pay for their children's education. Although the system developed for channelling private contribution to education is generally satisfactory, it appears that private sources concentrate on the less expensive forms of education, such as general high school and higher education in the humanities and social science.

33. Total expenditures. Annex 5 summarizes by source developments in total educational expenditure from 1967 to 1972. The increase has been rapid, in both monetary (28% p.a.) and real (some 16% p.a.) terms, with the result that share of education on GNP has increased from 4.2% in 1967 to 5.3% in 1972. Two main factors have been at the basis of the rapid growth of total educational expenditure: (a) the enrollment expansion and (b) the rising real costs which have accompanied the quality improvement programs already initiated. Although the available data indicate a high marginal propensity of households to spending on education which could permit the use of more private resources for education, the rapidity of the increase indicates that control should be applied on enrollment growth so that further expansion and major reforms are economically conceived and phased.

34. Recurrent expenditure absorbs some 75%-80% of total educational expenditure but information is not available for a complete analysis of its distribution by level and type of education. Nevertheless, the central

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1/ These taxes account for about two-fifths of central government tax revenue.

government budget shows that in recent years the shares of primary and university education in total recurrent expenditure have increased. They are expected to decrease considerably in the near future as the primary school-age population decreases, university expansion is controlled and emphasis is given to expanding middle school and improving high schools and junior colleges.

35. Salaries absorb some 80% of recurrent expenditure in national and public institutions and about 70% in private institutions. Throughout the civil service, however, salaries are low relative to those given in other sectors of the economy for the same level of qualification. In spite of recent increases, the education sector has had difficulties in recruiting and retaining qualified personnel.

36. Partly as a result of the low level of teacher salaries and of the large number of students per teacher, unit recurrent costs are low by international standards. On average, the estimated 1972 unit recurrent costs 1/ are:

(US$)

Primary School	28	Middle School	68
High School	36	University	285

A sample survey indicates that in 1970 unit recurrent costs in private institutions were 30% and 10% higher than in public schools at the primary and middle levels but slightly lower at the other levels. It is expected that unit costs need, at least, to double in real terms over the next 14 years to provide for the presently planned qualitative improvements.

37. Capital expenditure on education fluctuated at around 20% of total educational expenditure in the late 60s and has increased to almost 25% more recently. These ratios are comparatively high for a country of Korea's level of development. However, to meet enrollment expansion, especially at the middle school level, capital expenditure has been inadequate as indicated by the large average class-size and the lack of instructional equipment. Furthermore, at the secondary and especially at the post-secondary level capital expenditure has not been properly directed: in particular, elaborate and large buildings have been constructed while the need for functionally-designed and well-equipped workshops has been neglected.

1/ For a comparison for the other Asian countries, see para 3.10 of the main report.

COMPARATIVE EDUCATION INDICATORS

Comparative education data are useful in the evaluation of various education systems and the analysis of relative stages of educational development between various countries. However, on the basis of the present data, cross-national comparison should be approached with great caution. Data presented in the following table have been collected largely by the Bank missions from government sources; the remainder are staff estimates or data from Unesco. Efforts have been made to standardize definitions and, within limits, to check the accuracy of the data. Nevertheless, such data are still imperfect in several respects and the Bank is working to improve them progressively on the occasion of its operational work. In the use of these data, the following qualifications should be borne in mind:

1) "education" as defined in the table includes all education and training, formal and non-formal;

2) "Primary" education refers to education at the first level and "secondary" education refers to all education at the secondary level regardless of type (e.g., general, technical, agricultural);

3) ""Vocational" education (Col. 10) includes enrollments in technical, commercial, agricultural, vocational and home-economic courses;

4) "Literacy rates" (Col. 3) are usually obtained from country censuses. In many countries they are only approximations and it is doubtful that any uniform definition of "literate" has been followed consistently;

5) "Public expenditure in education" (Cols. 4 and 5) refers to all capital and recurrent expenditures devoted to education by public and quasi-public agencies;

6) "Enrollment ratios" (Cols. 7 and 9) refer to school year and mean the percentage of eligible children enrolled full-time in the appropriate school, public and private by level. They are often subject to a wide margin of error in the developing countries owing to variations in the accuracy of basic data (i.e., age-specific population and enrollments). Enrollment figures frequently are higher than the number of students actually in school. Overaged students whose inclusion is indicated by footnotes also can inflate the ratio.

	Year	Population (Millions) (1)	GNP/CAPITA (US $) (2)	Literacy Rate (% of Adults) (3)	Public Education Expenditures Per Capita (Market Prices US$) (4)	% of GNP Devoted to Education (Public Expenditures only) (5)	% of Total Public Expenditures Devoted to Education (6)	Primary Enrollment Ratio Net (7)	Primary Students Per Teacher (8)	Secondary Enrollment Ratio Net (9)	% Secondary Enrollment in Vocational Schools (10)	Secondary Students per Teacher Full-Time Equivalent (11)	% Higher Enrollment in Agriculture and Engineering (12)	Annual Output from Higher Education per 100,000 Population (13)
ADVANCED														
Austria	1969	7.4 F	2,010 F	99	73	4.3	9.9	99	24	46	60	12	24	77 B
Canada	1970	21.4 F	3,700 F	99	309	8.1	22.5 E	99 E	25	80 D	12 E	17	9	513
Germany, Fed. Rep.	1969	61.6 F	2,930 F	99	85	3.1	9.1 D	96	28	66 Y	28	21	25	230
Japan	1969	103.4 F	1,920 F	99	50 C	3.9	20.5	99	26	90	20	21	21	308
Netherlands	1969	13.0 F	2,430 F	99	180	7.2	20.0	99 D	30	66	41	19	25	330
New Zealand	1971	2.8 F	2,700 F	99	110	4.8 M	16.5 W	99	27	68	...	18	18	287
Norway	1970	3.9	2,860	99	169	6.7	17.5	99	23	71 E	22 E	16	22	64 C
Sweden	1970	8.1 F	4,040 F	99	311	9.0	15.0	100	18	88	41	14	14	240
United Kingdom	1969	55.7	2,070 F	97	94	5.8	13.8	98	28	58	5 C	18	16	188 B
U. S. A.	1970	204.8	4,760	99	253	5.8	16.0	97	25	94	...	20	7	520
EUROPE														
1. Greece	1971	8.9 F	1,040 F	82 E	23 H	2.2	9.3 E	99 E	33 E	59 E	16 E	31 E	14 E	86 F
2. Ireland	1969	2.9 F	1,360 F	98	58	4.8	11.4	95	33	54 YG	25	17	13 B	133 A
3. Spain	1970	33.6	1,020	94 D	20	2.4	12.5 E	91	35	29	22 C	30	19	31 C
AFRICA														
4. Algeria	1970	13.8	277	25 D	31	9.0	...	73	42	11	20	20	6	18
5. Cameroon	1970	5.8	180	...	6	3.0	20.0	74	48	8	23	25	4	7
6. C.A.R.	1970	1.6	140	...	5	4.0	20.0	73 X	64	4 X	18	30	...	...
7. Chad	1970	3.6	80	7	3 D	4.3 M	14.3 D	33	72	2	8	30	...	...
8. Congo (B)	1970	0.9	300	50 ?	14	5.8	23.2	80 X	59	13	10	28	...	...
9. Ethiopia	1971	24.6 F	80 F	7	3	4.0 F	19.5	16	51	5	2	34	17	5
10. Gabon	1968	0.5 F	630 F	30 D?	11 C	3.3 C	13.7 C	75	40 E	10	18	18 E	1	...
11. Ghana	1970	8.6	310	...	13	4.7	21.7 Q	74	29	8	4	18	15 E	13 E
12. Ivory Coast	1968	4.9 F	310 F	9 A	10	4.2 C	20.4	44	46	6	8	23	...	...
13. Kenya	1970	11.3	150	30 D	8 H	5.3 H	20.0	64	34	10	2	22	29 D	5 A
14. Liberia	1970	1.1	240	15	8	3.7	11.7	50 X	31	12 X	6	16	12 C	9 C
15. Mali	1972	5.0 F	70 F	10	3	4.6 N	32.3	18	40	4	6	17	36	5
16. Morocco	1970	15.3	230	20	9	4.1 N	17.4	54	35	17	3	27	3	7 A
17. Nigeria	1971	55.1 F	120 F	...	3	3.2 N	...	34 X	37	4	18	23	16	6
18. Senegal	1969	3.9 F	230 F	10	11 F	3.5	20.1	43 X	46	8 X	27 B	25	2 C	8 A
19. Sierra Leone	1968	2.6 F	190 F	7 YA	4	2.9	19.5 C	32	30	13	7 C	25	17	7 C
20. Somalia	1971	2.8 F	70 F	5	1	...	6.7 H	6	30	2	5	20	20	0 A
21. Sudan	1970	15.7	120	...	4 A	3.5 B	22.0 B	31 X	48 A	2 A	3 C	17 A	23 B	10 C
22. Tanzania	1971	13.3 F	100 F	...	4	4.5	16.4	37	45	2	6	29	11	3
23. Uganda	1970	9.8	130	25 A	6	3.2 N	24.2 Q	46 EU	36	4 U	11	21	10	5
24. Upper Volta	1972	5.6 F	64 F	5	2	4.0	27.6	10	46	2	5	23	6	1
25. Zaire	1970	18.8	90	13	8	5.7 N	19.0 E	78	44	8	20	24	10	2 B
26. Zambia	1971	4.1 F	400 F	43	28	5.6	17.4	80 X	50	12	5	17	8	2
C. AMERICA AND CARIBBEAN														
27. Costa Rica	1971	1.7 F	560 F	89	30	5.2	27.7	84	29	26	8	25	11	...
28. Dominican Republic	1969	4.1 F	350 F	55	6	2.9 F	17.0	80	56	17	1	26	10	16 C
29. El Salvador	1969	3.3 F	300 F	49 YA	10 BV	3.0 B	25.4 GQ	63 C	31	15 C	32 E	...	15 C	7 A
30. Guatemala	1968	5.2 F	360 F	38 YA	6 B	2.5 B	17.6	43	38	6	22	26	10	6
31. Jamaica	1969	1.9 F	670 F	86	24	4.4	19.1	86 X	52	42	9 A	19	...	11 A
32. Mexico	1970	50.7	670	76	18	2.6	17.1 Q	71	46	19	23 C	23	26 C	22
33. Nicaragua	1969	2.0 F	430 F	53	10	2.4	19.8	80	36	13	8	23	20 F	15
34. Trinidad and Tobago	1971	1.0 F	860 F	90	40	5.1	18.9	95	35	46	11	25	19	14
SOUTH AMERICA														
35. Brazil	1969	92.8 F	420 F	65 D	10	3.2	14.0	64	31	16	17	...	18 C	35 C
36. Chile	1969	9.8 F	720 F	90	32	5.4	29.0 F	90 F	40	35	31	32 A	28 C	41 A
37. Colombia	1970	21.9	340	74 H	12	3.7 N	10.9	59 X	36	19 X	21	14	29	30
38. Ecuador	1968	6.1 F	290 F	68 A	8 V	3.2 V	21.5 G	71	38	18	29 D	13 A	29 C	21 C
39. Guyana	1965	0.7 F	370 F	83 A	15	5.0	14.4	90 X	33 A	18 C	3 C	28	3 C	...
40. Paraguay	1970	2.4	260	79	5	2.2	14 .	89 A	40	17 X	2	15	12	31
41. Peru	1971	13.5 F	450 F	72	18	...	4...	80	37	30	15	28	23	11
42. Venezuela	1970	10.4	980	81	45	4.9	22.0	80	33	35	32	22	18	59
ASIA														
43. China (Taiwan)	1971	14.0 F	390 F	73	15	4.2	19.0	98 F	52 F	50 F	16 F	35 F	27 F	179
44. India	1971	538.1 F	110 F	29	3 AV	2.6 AVF	...	79 X	43 A	28 X	6 AV	20 AV	11 AV	57 AV
45. Indonesia	1971	115.9 F	80 F	56	1 Q	2.6 BV	13.0 F	77 X	39	15 X	26	18 X	8	...
46. Iran	1971	28.7 F	380 F	37	11	3.1	10.8	62	33	23	9	36 F	23	39 F
47. Iraq	1970	9.7	320	26	19	6.7	16.3	64	22	23	3	26	17	80
48. Jordan	1970	2.3	250	55 A	7.3	4.6	17.1 Q	90	36	35	9	22	1	48
49. Korea	1971	31.8 F	250 F	85 B	13.0	3.6	16.7	100 X	56	46	69	36	28	117
50. Lebanon	1971	2.7 F	990 F	86 F	21 F	4.0	21.0	79	18 H	34	36	23	4	170
51. Malaysia	1970	10.9	380	89 H	17	4.7	18.5 E	88 X	31	29 X	3	25	16	74
52. Philippines	1970	36.9	210	72	6	3.6	29.0	119 X	30	71	8	36	10	457
53. Singapore	1970	2.1	920	75	50	3.4	16.1	90	32	40	16	25	18	182
54. Thailand	1971	36.2 F	200 F	70	8 V	3.7 H	17.1	83 X	34	13 X	13	25	15	37
55. Turkey	1969	35.4 F	390 F	49 A	9	3.5	17.1	92 X	42	25 X	14	33	26	41
56. Yemen Arab Republic	1971	5.7 F	80 F	10	1 F	1.0 F	9.4 F	12 H	40 H	1 H	3 H	18 H	...	1 H
SUMMARY FOR DEVELOPING COUNTRIES														
Number of Countries				50	55	54	54	57	57	57	56	55	50	48
Range				(5-98)	(1-58)	(1.0-9.0)	(4.5-32.3)	(6-119)	(18-72)	(1-71)	(1-49)	(13-36)	(1-29)	(0-457)
Quartiles: Upper				79	18	4.7	21.0	86	46	29	20	26	20	29
Median				55	10	4.0	17.1	74	37	15	11	23	15	22
Lower				25	5	3.0	14.3	52	33	8	5	20	10	7

Symbols:
... Datum unavailable
- Magnitude nil or negligible
0 Magnitude less than half of unit employed
? Questionable
* Includes part-time students

Notes:
A = 1965 or before
B = 1966
C = 1967
D = 1968
E = 1969
F = 1970
G = 1971
H = 1972
M = Current prices
N = G. D. P.
P = Including foreign aid
Q = Central government only
U = Public only
V = Including private expenditure
X = Including overaged students
Y = UNESCO Sources

Sources: Columns (1) and (2), World Tables (IBRD) Provisional Figures
Columns (3)-(9) and (11): IBRD Missions
Columns (10)-(12) and (13): UNESCO Statistical Yearbook and IBRD Missions

April 24, 1973

REPUBLIC OF KOREA

EMPLOYMENT BY SECTOR, OCCUPATION AND EDUCATIONAL BACKGROUND, 1971-1986
(In thousands)

(1) Employment by Economic Sector, 1971-1986

	Total	Agriculture and Fishery	Energy	Mining	Machinery	Textile	Chemical	Other manu-facturing	Services	Construction	Transport
1971 (estimated)	10,190.1	5,321.2	79.7	97.2	274.7	261.7	172.6	577.6	2,711.9	347.5	34.6
1986 (projected)	16,185.8	2,615.8	279.9	119.6	1,607.9	634.3	806.1	2,538 9	4,777.9	1,252.0	1,553.4
Increase/Decrease (-)	5,995.7	(-) 2,705.4	200.2	88.4	1,333.8	378.6	633.5	1,961.3	2,066.0	904.5	1,207.4

(2) Employment by Occupational Classification, 1971-1986

	Total	Professional & Technical workers	Adminis-trative workers	Clerical workers	Sales workers	Farmers, etc.	Miners and Related	Transport workers	Crafts & Service workers
1971 (estimated)	10,190.1	310.4	106.6	504.7	1,155.6	5,271.4	53.5	170.4	2,617.5
1986 (projected)	16,185.8	600.7	362.1	1,382.1	2,111.3	2,578.9	133.5	704.9	8,312.3
Increase/Decrease (-)	5,995.7	290.3	255.5	877.4	955.7 (-)	2,692.5	80.0	534.5	5,694.8

(3) Employment by Educational Background, 1971-1986

	Total	University	Junior 1/ College	High School	Middle School	Primary School	Less than Primary
1971 (estimated)	10,200	500	400	1,600	2,100	3,700	1,900
1986 (projected requirements) 2/	16,200	900	1,200	2,700	3,800	6,000	1,400
(a)Increase/Decrease (-)	6,000	400	800	1,100	1,700	2,300	(-) 500
(b)Attrition		200	100	700	1,100		
Education output needs (a) + (b)		600	900	1,800	2,800		
Estimated supply from the education system 3/		690	500	2,500	2,500		
Surplus (+)/Deficit (-)		+ 90	-400	+ 700	- 200		

1/ Includes higher schools, uncompleted university courses, etc.

2/ IBRD/IDA staff estimates on the basis of projected occupation-education matrix based on international comparison with countries of GNP per capita and economic structure similar to that expected for Korea in the mid-80's.

3/ Based on enrollment projections in Annexes 3 and 4 and assuming a 90% participation rate at the university level, 80% at the junior college level and 75% at the other levels.

Sources: For (1) and (2) Economic Planning Board and Ministry of Science and Technology (MOST). For (3) IBRD/IDA staff estimates on the basis of 1966 population census, past (1966-1971) educational outflows in the labor market and assumptions summarized in foot-note 2.

December, 1972.

ANNEX 1

REPUBLIC OF KOREA

FORECAST OF SCIENTIFIC AND TECHNICAL MANPOWER 1972 - 1986

NEEDS AND SUPPLY

	1972	1973	1974	1975	1976	Aggregate 1972 - 76	1981	1986
Part A. Scientists								
Total Need	2,160	2,360	2,570	2,810	3,060	12,960	4,270	5,650
Already Employed	1,922	2,096	2,301	2,503	2,728	11,550	3,639	4,800
Newly Employed	238	264	269	307	332	1,410	631	850
Science College Graduates	3,198	3,512	3,736	3,736	3,736	17,918	3,736	
Graduates seeking employment (70%)	2,238	2,458	2,615	2,615	2,615	12,541	2,615	
Surplus or shortage (-)	2,000	2,194	2,346	2,308	2,283	11,131	1,984	-307
Part B. Engineers								
Total Need	27,360	29,770	32,350	35,080	38,010	162,570	54,510	72,310
Already Employed	24,417	26,546	28,899	31,389	34,054	145,305	46,717	61,921
Newly Employed	2,943	3,224	3,451	3,691	3,956	17,265	7,793	10,389
Engineering College Graduates	6,428	7,368	8,740	8,740	40,740	40,016	8,740	8,740
Graduates seeking employment (70%)	4,357	5,016	6,115	6,115	6,115	27,718	6,115	6,115
Surplus or shortage (-)	1,414	1,792	2,664	2,424	2,159	10,453	-1,678	
Part C. Technicians								
Total Need	68,930	75,160	81,670	88,670	96,240	410,670	139,640	184,530
Already Employed	61,414	66,906	72,933	79,247	86,051	366,551	118,928	157,499
Newly Employed	4,516	8,254	8,737	9,423	10,189	44,119	20,712	27,031
Higher Vocational College Graduates	5,916	3,961	4,152	4,969	4,969	23,967	4,969	4,969
Graduates seeking employment (63%)	3,727	2,495	2,616	3,130	3,130	15,098	3,130	3,130
Science & Engineering Junior College Graduates	1,046	1,046	1,046	1,046	1,046	5,230	1,046	1,046
Graduates seeking employment (63%)	658	658	658	658	658	3,270	658	658
Transfer of graduates from universities	(944)	(1,340)	(1,626)	(1,667)	(1,672)	(7,249)	(912)	
Surplus or shortage (-)	-2,187	-3,761	-3,837	-3,968	-4,729	-18,482	-16,012	-23,243
Part D. Skilled Workers								
Total Need	504,570	567,490	631,760	701,890	778,320	3,183,940	1,188,880	1,609,460
Already Employed	435,877	489,701	550,408	612,983	680,909	2,769,878	1,012,288	1,370,365
Newly Employed	68,693	77,789	81,352	88,907	97,321	414,062	176,592	239,095
Vocational High School Graduates	40,016	45,199	45,199	45,199	45,199	220,812	45,199	45,199
Graduates seeking employment (63%)	25,210	28,475	28,475	28,475	28,475	139,110	28,475	28,475
Miscellaneous Trade School Graduates	6,220	6,535	6,535	6,535	6,535	32,360	6,535	6,535
Graduates seeking employment (63%)	4,009	4,117	4,117	4,117	4,117	20,477	4,177	4,117
Surplus or shortage (-)	-39,474	-45,197	-48,760	-56,315	-64,729	-254,475	-114,000	-206,503

Note: According to the definitions used by the Ministry of Science and Technology (MOST): a) An engineer is a graduate from a science and engineering college or has the same qualifications, and plans, designs and directs complete production facilities including the construction or fabrication of structures, devices, systems, and processes, using advanced principles of engineering; b) Scientists perform complicated physical, mathematical, biological, or other research aimed at overall industrial or social development, or the extension of knowledge; c) A technician works in direct support of engineers or scientists, utilizing the practical knowledge of fundamental scientific, engineering, mathematical, or draft design principles; and d) (Skilled Workers) A craftsman is one who is engaged in or directly associated with manufacturing processes and the construction, manifpulation, maintenance and repair of various types of highway, structures, machines and other products, and workers who are engaged in the extraction of solids, semi-liquids and gas from the earth, both of whose jobs require more than six months in mastering them.

Source: The Ministry of Science and Technology

December, 1972

ANNEX 2.3

REPUBLIC OF KOREA

ACTUAL AND PROJECTED ENROLLMENTS AND TEACHER REQUIREMENTS

(Public and Private Education-in thousands)

Level and Type	1966 Enrollments	1966 T:P Ratio	1966 Total Teachers	1971 Enrollments	1971 T:P Ratio	1971 Total Teachers	1976 Enrollments	1976 T:P Ratio	1976 Total Teacher Need	1981 Enrollments	1981 T:P Ratio	1981 Total Teacher Need	1986 Enrollments	1986 T:P Ratio	1986 Total Teacher Need
A. PRIMARY LEVEL	5,169	1:61	85	5,807	1:56	104	5,200	1:50	104	5,000	1:45	110	5,145	1:40	128
Enrollments as % Age Group	100%			109%			106%			102%			100%		
Enrollments as % Age Group excluding Over-age				100%			100%			100%					
B. MIDDLE LEVEL															
(i) Middle School	822			1,530	1:44	36	1,905	1:40	47.5	2,180	1:30	72	2,335	1:30	78
(ii) Higher Civic School	59			61	1:25	25	45	1:25	2	20	1:25	1	-	-	-
(iii) Lower Trade School	10			11	1:22	0.5	10	1:20	0.5	-	-	-	-	-	-
Sub-Total	891	1:42	20	1,602	1:41	39	1,960	1:39	50	2,200	1:30	73	2,335	1:30	78
Enrollments as % of Age Group	42%			60%			75%			90%			95%		
C. HIGH SCHOOL LEVEL															
(i) General H. S.	260	1:33	7.9	337	1:32	10.7	550	1:30	28	600	1:30	20	600	1:27	22
(ii) Industrial H. S. 1/	174	1:26	6.7	310	1:27	11.6	485	1:25	20	650	1:22	30	750	1:20	37
(iii) Higher Trade Schools	13			13	1:19	0.7	15	1:20	1	-	-	-	-	-	-
(iv) In Grades 10,11,12 of Junior Colleges				15	1:17	0.9	-	-	-	-	-	-	-	-	-
Sub-Total	447			675	1:28	23.9	1,050	1:28	39	1,250	1:25	50	1,350	1:23	59
Enrollments as % of Age Group	24%			30%			39%			50%			55%		
D. HIGHER EDUCATION															
(i) Junior Teachers College	8.2	1:20	0.4	12.5	1:17	0.8	13	1:20	0.7	15	1:20	0.8	15	1:20	0.7
(ii) Junior College				16.4	1:16	1.0	26	1:20	1.3	35	1:20	1:7	40	1:20	2
(iii) Other Non-university	27.6 2/	1:25	1.1	7.5	1:19	0.4	15	1:20	0.8	30	1:20	1:5	40	1:20	2
(iv) University Level	131.4	1:23	5.8	155	1:19	8.1	196	1:18	11	230	1:16	24.3	260	1:15	16
(v) Graduate Studies				7.3			10		0.2	14		0.2	15		0.3
Sub-Total	167.2	1:23	7.3	199	1:19	10.3	260	1:19	14.0	324	1:17	18.5	370	1:17	21
Enrollments as % of Age Group	7%			8%			8%			9%			11%		
TOTAL ENROLLMENTS	6,674			8,283			8,470			8,774			9,500		
As % of 6-21 Age Group				65%			62%			65%			71%		

1/ Includes Comprehensive Schools.
2/ Includes students in Grades 13 and 14 of Junior Technical Colleges.

Source: IBRD/IDA staff estimates on the basis of Third Five Year Plan and CLEP.

December, 1972.

ANNEX 3

REPUBLIC OF KOREA

ACTUAL AND PROJECTED ENROLLMENT AND TEACHER REQUIREMENTS

(Public education only - in thousands)

Level and Type	1971 Enrollments	1971 T:P Ratio	1971 Total Teachers	1976 Enrollments	1976 T:P Ratio	1976 Teacher Need	1981 Enrollments	1981 T:P Ratio	1981 Teacher Need	1986 Enrollments	1986 T:P Ratio	1986 Teacher Need
A. PRIMARY LEVEL	5,740	1:56	103	5,100	1:50	102	4,900	1:45	109	5,050	1:40	126
As % Total Public and Private Enrollment	99%			98%			98%			98%		
B. MIDDLE LEVEL												
(i) Middle School	841	1:42	20	1,121	1:40	28	1,506	1:30	50	1,870	1:30	62
(ii) Higher Civil School	61	1:25	2.5	45	1:25	2	20	1:25	1	-	-	-
(iii) Lower Trade School	11	1:22	0.5	10	1:20	0.5	-	-	-	-	-	-
Sub-Total	913	1:40	23	1,176	1:39	30.5	1,526	1:30	51	1,870	1:30	62
As % Total Public and Private Enrollment	57%			60%			70%			80%		
C. HIGH SCHOOL LEVEL												
(i) General H. S.	134	1:30	4.5	275	1:30	9	300	1:30	10	300	1:27	11
(ii) Vocational H. S.	157	1:22	7	280	1:25	11	450	1:22	20	550	1:20	28
(iii) Higher Trade School	13	1:19	0.7	15	1:20	1	-	-	-	-	-	-
(iv) In Grades 10,11 and 12 of Higher Tech. Colleges	15	1:17	0.9	-	-	-	-	-	-	-	-	-
Sub-Total	319	1:24	13.1	570	1:27	21	750	1:25	30	850	1:23	39
As % Total Public and Private Enrollment	47%			54%			60%			63%		
D. HIGHER EDUCATION												
(i) Junior College	5			13	1:20	0.6	25	1:20	1.2	30	1:20	1.5
(ii) Junior Teachers College	12.5	1:17	0.8	13	1:20	0.7	14	1:20	0.7	14	1:20	0.7
(iii) Other Non-univ. College	3.5			8	1:20	0.4	16	1:20	0.8	25	1:20	1.2
(iv) Universities & Colleges	40	1:14	2.8	70	1:18	3.9	100	1:16	6.3	130	1:15	8.6
(v) Graduate Studies	2			4								
Sub-Total	63	1:16	4	108	1:19	5.6	155	1:17	9.0	199	1:17	12
As % of Total Public and Private Enrollment	32%			41%			48%			54%		
Total Public	7,035		143	6,954		159	7,311		199	7,969		239
As % of Total Public and Private Enrollment	85%			82%			83%			84%		

Source: IBRD/IDA staff estimates on the basis of Third Five Year Plan and CLEP.

December, 1972.

ANNEX 4

REPUBLIC OF KOREA

EXPENDITURE ON EDUCATION BY SOURCE, 1967 - 1972
(IN BILLION WON)

	1967	1968	1969	1970	1971 1/ (mid-year estimate)	1972 (budgetary estimate)
National Institutions						
Total Expenditure	3.1	4.5	5.4	7.4	7.8	10.7
Capital expenditure	0.7	1.0	1.0	1.3	1.8	2.8
Recurrent expenditure	2.4	3.5	4.4	6.1	6.0	7.9
Salaries	(1.4)	(1.9)	(2.7)	(3.9)	n.a.	(6.0)
Other recurrent	(1.0)	(1.6)	(1.7)	(2.2)	n.a.	(1.9)
Public Institutions						
Total Expenditure	33.4	46.3	58.8	90.3	85.2	115.1
Capital expenditure	7.0	9.3	11.7	21.0	20.0	27.0
Recurrent expenditure	26.4	37.0	47.1	69.3	65.2	88.1
Salaries	(20.0)	(28.1)	(36.4)	(55.9)	(55.2)	(70.7)
Other recurrent	(6.4)	(8.9)	(10.7)	(13.4)	(10.0)	(17.4)
Private Institutions						
Total Expenditure	16.0	21.0	28.3	39.7	40.7	52.7
Capital expenditure	2.5	1.7	3.0	6.7	9.4	8.3
Recurrent expenditure	13.5	19.3	25.3	33.0	31.3	44.4
Salaries	(7.7)	(11.3)	(15.4)	(22.8)	(21.0)	(30.8)
Other recurrent	(5.8)	(8.0)	(9.9)	(10.2)	(10.3)	(13.6)
All Institutions						
Total Expenditure on Education	52.5	71.8	92.5	137.4	133.7	178.5
Capital expenditure	10.1	12.0	15.7	29.0	31.2	38.1
Recurrent expenditure	42.4	59.8	76.8	108.4	102.5	140.4
Total recurrent expenditure as percentage of total expenditure	80.7%	83.3%	83.0%	78.9%	76.4%	78.6%

1/ This estimate is downward biased, especially as to private expenditure. The order of magnitude of the total educational expenditure in 1971 has probably been around Won 150 billion as indicated in the "Basic Data" of this report.

Source: Ministry of Education and Economic Planning Board

November, 1972.

ANNEX 5

ANNEX 6

REPUBLIC OF KOREA

PROJECTED EXPENDITURE ON EDUCATION AND TRAINING

	(billion Won at 1971 prices) Recurrent Expenditure			1972-1986 Annual Average Capital Expenditure
	1976	1981	1986	
Primary Level	75	92	120	12
Middle Level	60	79	93	13
High School Level	40	60	76	21
Post-Secondary Level	36	59	86	14
Other	21	25	31	5
Total	232	315	406	65
As a percentage of GNP	5.4%	5%	5%	
Public recurrent expenditure on education as a percentage of total public recurrent expenditure	24%	20%	18.5%	

Source: IBRD/IDA staff estimates on the basis of enrollment and teacher requirements projections of Annexes 3 and 4. The projection assumes, conservatively but on the basis of discernible short-run trends, that present unit costs would increase by 5% - 6% p.a. in real terms to account for improvements in pupil: teacher ratios, more emphasis on practical training and better supply of expendable material. It further assumes that the present expenditure sharing pattern between the private and public sector will be maintained. Projection beyond 1976 must be regarded as approximate orders of magnitude only.

November, 1972.

REPUBLIC OF KOREA

The Project University Institutions

Enrollments[1] by Course of Study

School/College and Departments	Seoul N.U. A	Seoul N.U. P	Chung Nam N.U. A	Chung Nam N.U. P	Jeon Bug N.U. A	Jeon Bug N.U. P	Jeon Nam N.U. A	Jeon Nam N.U. P	Gyeong Bug N.U. A	Gyeong Bug N.U. P	Busan N.U. A	Busan N.U. P	Gang Won College A	Gang Won College P	Chung Bug N.U. A	Chung Bug N.U. P	Gong Ju Teachers' Coll. A	Gong Ju Teachers' Coll. P	Gyeong Gang Coll. A	Gyeong Gang Coll. P	Jesu College A	Jesu College P	Korea Univ. (Private) A	Korea Univ. (Private) P	Yonse Univ. (Private) A	Yonse Univ. (Private) P	Inha Univ. (Private) A	Inha Univ. (Private) P	Ewha Womens Univ. (Private) A	Ewha Womens Univ. (Private) P	Merchant Marine College A	Merchant Marine College P	Grand Actual	Total Planned
Engineering																																		
Civil Eng.			160	160	140	160	140	160			140	160											173	175	180	200	183	185					1,116	1,200
Mechanical Eng.					130	160	90	120	120	120	200	200											198	200	200	200	253	230					1,191	1,230
Electrical Eng.											180	200															185	185					365	385
Electronic Eng.									170	200	180	200											140	200	180	200							670	800
Ship Building Eng.											120	120															184	160					304	280
Metallurgical Eng.									120	120	160	160															181	180					461	460
Textile Eng.			160	160							200	200															95	120					455	480
Chemical Eng.					120	120	120	120	90	120	200	200															161	160					691	720
Architecture			145	160	140	160	140	160			140	160											155	170	180	200	190	185					1,090	1,195
Aeronautical Eng.																											30	120					30	120
Minutes Article Eng.																											150	160					150	160
Eng. of Resources																											137	155					137	155
Communications Eng.									0	160																							-	160
High Polymer Eng.									120	120																							120	120
Computer Eng.									0	160																							-	160
Electronic Physics									0	160																							-	160
Sub-Total			465	480	530	600	490	560	620	1,160	1,520	1,600											686	745	750	800	1,749	1,840					6,780	7,785
Sciences																																		
Mathematics	87	80			130	120																											217	200
Physics	135	120	110	120	140	120	120	120	117	120	110	120											149	160	120	120	106	120					1,107	1,120
Chemistry	134	120	120	120	150	160	120	120	141	120	110	120											155	160	160	160	27	120					1,117	1,200
Biology					120	160	100	120	111	120	80	80											117	120	120	120	30	120					678	840
Botany	53	60																															53	60
Zoology	43	60																															43	60
Oceanography	102	120																															102	120
Geology	83	80					0	120	109	120	110	120											103	160	120	120							525	720
Poliometereology	78	80																							120	120							198	200
Sub-Total	715	720	230	240	540	560	340	480	478	480	410	440											524	600	640	640	163	360					4,040	4,320
Agriculture																																		
Agriculture	87	80			81	80													100	120													268	280
Forestry	94	90																															94	90
Animal Science	104	100																	119	120													223	220
Agricultural Eng.	144	160																															144	160
Agricultural Chemistry	75	80			68	80																											143	160
Agricultural Economics	86	90			107	120																											193	210
Agricultural Biology	73	80																															73	80
Silk Textiles	87	110																															87	110
Agr. Home Economics	76	80																															76	80
Veternary Medicine	159	180																															159	180
culture	56	60																															56	60
Food Processing	74	80																															74	80
Forest Processing	43	30																															43	30
Sub-Total	1,158	1,220			256	280													219	240													1,633	1,770
Merchant Marine																																		
Navigation																															360	400	360	400
Marine Engineers																															357	400	357	400
Sub-Total																															717	800	717	800
Teacher Education																																		
Education	82	80	-	-	-	-	20	80	47	80	-	-	-	-	-	-	58	80	-	-	-	-							-	-			207	320
Korean Language	156	160	-	-	20	80	-	-	144	160	30	120	142	160	40	160	123	120	38	160	-	-							-	-			693	1,120
Foreign Language	316	320	-	-	-	-	-	-	292	320	157	240	146	160	110	160	246	320	55	120		80							258	280			1,644	2,000
Social Studies	259	280	-	-			-	-	167	180	-	-	-	-	-	-	161	240	-	-	-	-							233	240			820	940
Sciences	426	460	-	-	30	240	-	-	282	320	185	280	-	-	110	240	350	360	84	240	-	-							178	360			1,645	2,500
Mathematics	158	160	-	-	-	-	40	160	159	160	122	160	138	160	110	160	168	160	82	120	94	120							-	-			1,053	1,360
Home Economics	-	-	-	-	20	80	30	120	119	120	119	120	-	-	140	160	99	120	98	120	35	80							-	-			600	1,040
Physical Education	163	160			30	120	-	-	135	160	-	-	96	160	140	160	130	160	-	-	30	120							-	-			724	1,040
Audio-Visual	-	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							180	180			180	180
Industrial Teacher Ed.	384	480	60	120	-	-	90	120	120	120	-	-	-	-	-	-	-	-	-	-	-	-							-	-			654	840
Sub-Total	1,944	2,100	60	120	100	520	180	480	1,465	1,620	813	920	522	640	650	1,040	1,327	1,560	357	760	219	400							849	1,060			8,286	11,220

A = Actual
P = Planned
1/ = In schools/departments affected by the project

January 1973.

REPUBLIC OF KOREA

SECOND EDUCATION PROJECT

SUMMARY OF ESTIMATED PROJECT COST
(In Millions of Korean Won and US Dollars)

No.	Project Item Name	No. of Student Places Existing	Planned	Cost of Site Development 1	Cost of Building: Allowance for Improvement of Existing Facilities 2	Cost of Building: New Construction 3	Furniture 4	Professional Services 5	Total (1,2,3, 4 & 5)	Equipment	Technical Assistance	Total Costs Won Million	Total Costs US$ Million
	I. Vocational High Schools												
	A. Technical High Schools												
A.101	Busan	1,260	1,440	13.3	22.5	132.5	13.3	13.3	194.9	222.9		417.8	1.045
A.102	Changryeong	1,440	1,440	6.7	20.0	67.0	6.7	6.7	107.1	180.6		287.7	0.719
A.103	Cheonan	1,260	1,260	15.0	25.0	149.9	15.0	15.0	219.9	199.3		419.2	1.048
A.104	Cheongnyang	240	720	6.2	10.0	62.1	6.2	6.2	90.7	127.8		218.5	0.546
A.105	Chuncheon	840	1,080	16.5	20.0	164.7	16.5	16.5	234.2	221.1		455.3	1.138
A.106	Daegu	2,250	2,250	16.5	20.0	165.2	16.5	16.5	234.7	332.3		567.0	1.418
A.107	Gyeongnam	2,250	2,250	11.4	20.0	114.0	11.4	11.4	168.2	280.3		448.5	1.121
A.108	Gwangju	2,850	3,060	10.1	25.0	101.3	10.1	10.1	156.6	413.9		570.5	1.426
A.109	Hanrim	720	720	8.9	15.0	88.8	8.9	8.9	130.5	100.2		230.7	0.577
A.110	Incheon	2,070	2,070	11.8	20.0	118.3	11.8	11.8	173.7	275.2		448.9	1.122
A.111	Iri	1,800	1,800	10.9	25.0	109.1	10.9	10.9	166.8	303.1		469.9	1.175
A.112	Jeonju	1,920	1,920	9.3	25.0	92.9	9.3	9.3	145.8	276.0		421.8	1.054
A.113	Pohang	900	1,080	6.5	15.0	65.3	6.5	6.5	99.8	211.6		311.4	0.779
A.114	Samcheonpo	720	720	8.2	25.0	82.4	8.2	8.2	132.0	94.6		226.6	0.567
A.115	Seongdong	2,160	2,160	7.7	25.0	77.4	7.7	7.7	125.5	344.5		470.0	1.175
A.116	Seonji	1,260	1,260	9.0	20.0	89.6	9.0	9.0	136.6	184.6		321.2	0.803
A.117	Seoul	1,980	1,980	9.7	30.0	97.8	9.7	9.7	156.9	329.2		486.1	1.215
A.118	Yeommudae	420	540	9.9	15.0	99.4	9.9	9.9	144.1	115.0		259.1	0.648
	Sub-Total	26,340	27,750	187.6	377.5	1,877.7	187.6	187.6	2,818.0	4,212.2		7,030.2	17.576
	B. Agricultural High Schools												
B.101	Andong	1,031	1,080	5.7	12.0	56.9	5.7	5.7	86.0	132.4		218.4	0.546
B.102	Changryeong	360	360	5.2	10.0	51.6	5.2	5.2	77.2	69.2		146.4	0.366
B.103	Cheongju	1,080	1,080	3.7	10.0	37.4	3.7	3.7	58.5	129.9		188.4	0.471
B.104	Gangjin	540	540	5.3	10.0	52.5	5.3	5.3	78.4	107.6		186.0	0.465
B.105	Gimje	477	540	8.3	10.0	82.8	8.3	8.3	117.7	95.6		213.3	0.533
B.106	Icheon	720	720	3.0	10.0	30.2	3.0	3.0	49.2	107.6		156.8	0.392
B.107	Hongcheon	360	360	4.0	10.0	39.8	4.0	4.0	61.8	84.9		146.7	0.367
B.108	Jangseong	475	540	3.5	10.0	35.2	3.5	3.5	55.7	95.6		151.3	0.378
B.109	Namweon	540	540	5.8	10.0	58.1	5.8	5.8	85.5	93.1		178.6	0.446
B.110	Sacheon	540	540	2.6	5.0	26.0	2.6	2.6	38.8	82.0		120.8	0.302
B.111	Seogwi	450	540	3.3	5.0	32.5	3.3	3.3	47.4	93.7		141.1	0.353
B.112	Seongju	631	720	2.2	5.0	22.3	2.2	2.2	33.9	96.9		130.8	0.327
B.113	Seosan	960	1,080	7.7	10.0	76.8	7.7	7.7	109.9	129.8		239.7	0.599
B.114	Yuseong	418	720	6.6	10.0	66.0	6.6	6.6	95.8	96.1		191.9	0.480
	Sub-Total	8,582	9,360	66.9	127.0	668.1	66.9	66.9	995.8	1,414.4		2,410.2	6.025
	2. Vocational Higher Schools/ Junior Colleges												
	C. Technical Higher School												
C.101	Samcheong	1,200	1,200	25.8	20.0	258.7	25.8	25.8	356.1	286.3		642.4	1.606
	D. Agricultural Higher Schools												
D.101	Anseong	320	720	15.3	5.0	153.4	15.3	15.3	204.3	108.8		313.1	0.783
D.102	Milyang	400	720	4.9	5.0	48.6	4.9	4.9	68.3	66.5		134.8	0.337
	Sub-Total	720	1,440	20.2	10.0	202.0	20.2	20.2	272.6	175.3		447.9	1.120
	E. Fishery Higher Schools												
E.101	Gunsan	800	800	5.3	10.0	52.7	5.3	5.3	78.6	134.4		213.0	0.533
E.102	Tongyeong	680	1,000	8.8	10.0	87.5	8.8	8.8	123.9	170.2		294.1	0.735
E.103	Yeosu	1,040	1,200	8.0	10.0	79.9	8.0	8.0	113.9	195.5		309.4	0.774
	Sub-Total	2,520	3,000	22.1	30.0	220.1	22.1	22.1	316.4	500.1		816.5	2.042
	F. Schools of Nursing												
F.101	Chuncheon	360	360	5.5	5.0	55.1	5.5	5.5	76.6	61.3		137.9	0.345
F.102	Chengju	360	360	3.7	8.0	36.7	3.7	3.7	55.8	61.3		117.1	0.293
F.103	Jeonju	360	360	5.5	5.0	55.4	5.5	5.5	76.9	61.3		138.2	0.346
F.104	Jinju	40	120	3.7	-	37.0	3.7	3.7	48.1	40.9		89.0	0.222
	Sub-Total	1,120	1,200	18.4	18.0	184.2	18.4	18.4	257.4	224.8		482.2	1.206

REPUBLIC OF KOREA

SECOND EDUCATION PROJECT

SUMMARY OF ESTIMATED PROJECT COST

No.	Project Item Name	No. of Student Places Existing	Planned	Cost of Site Development 1	Cost of Building: Allowance for Improvement of Existing Facilities 2	Cost of Building: New Construction 3	Furniture 4	Professional Services 5	Total (1,2,3, 4 & 5)	Equipment	Technical Assistance	Total Costs Won Million	US$ Million
	3. University												
	G. Colleges of Engineering												
G.101	Busan N. U.	1,870	1,870	-	25.0	-	-	2.5	27.5	544.9		572.4	1.431
G.102	Chung Nam N. U.	480	480	5.0	25.0	50.0	5.0	5.0	90.0	377.4		467.4	1.168
G.103	Gyeong Bug N. U.	1,280	1,280	-	25.0	-	-	2.0	27.0	690.3		717.3	1.793
G.104	Inha U.	480	480	-	30.0	-	-	3.0	33.0	604.5		637.5	1.594
G.105	Jeon Bug N. U.	600	600	10.2	15.0	102.0	10.2	10.2	147.6	266.3		413.9	1.035
G.106	Jeon Nam N. U.	1,840	1,840	18.3	-	183.0	18.3	18.3	237.9	265.4		503.3	1.258
G.107	Korea N. U.	745	745	-	15.0	-	-	2.0	17.0	75.5		92.5	0.231
G.108	Yonsei U.	500	500	-	30.0	-	-	3.0	33.0	270.2		303.2	0.758
	Sub-Total	7,795	7,795	33.5	165.0	335.0	33.5	46.0	613.0	3,094.5		3,707.5	9.268
	H. Colleges of Natural Science												
H.101	Busan N. U.	440	440	-	20.0	-	-	2.0	22.0	318.2		340.2	0.851
H.102	Chung Nam N. U.	240	240	4.5	20.0	45.0	4.5	4.5	78.5	420.5		499.0	1.248
H.103	Gyeong Bug N. U.	480	480	-	25.0	-	-	2.0	27.0	245.8		272.8	0.682
H.104	Inha U.	480	480	-	30.0	-	-	3.0	33.0	332.7		365.7	0.914
H.105	Jeon Bug N. U.	560	560	2.0	15.0	20.0	2.0	2.0	41.0	257.7		298.7	0.747
H.106	Jeon Nam N. U.	680	680	-	15.0	-	-	2.0	17.0	410.7		427.7	1.069
H.107	Korea U.	600	600	-	15.0	-	-	2.0	17.0	230.5		247.5	0.619
H.108	Seoul N. U.	-	-	-	-	-	-	-	-	834.5		834.5	2.086
H.109	Yonsei U.	640	640	-	30.0	-	-	3.0	33.0	330.8		363.8	0.909
	Sub-Total	4,120	4,120	6.5	170.0	65.0	6.5	20.5	268.5	3,381.4		3,649.9	9.125
	I. College of Merchant Marine												
I.101	Hangug	720	800	-	-	-	-	-	-	396.2		396.2	0.990
	K. College of Agriculture												
K.101	Seoul N. U.	1,200	1,200	-	-	-	-	-	-	624.1		624.1	1.560
K.102	Jeon Bug N. U.	320	320	-	15.0	-	-	1.5	16.5	103.5		120.0	0.300
K.103	Gyeong Sang N. U.	280	280	-	15.0	-	-	1.5	16.5	88.2		104.7	0.262
	Sub-Total	1,800	1,800		30.0			3.0	33.0	815.8		848.8	2.122
	4. Teacher Education												
	L. Junior Teacher Colleges												
L.101	Busan T. C.	720	720	-	15.0	-	-	2.0	17.0	36.2		53.2	0.133
L.102	Cheongju T. C.	720	720	-	15.0	-	-	2.0	17.0	38.3		55.3	0.138
L.103	Chuncheon T. C.	720	720	-	15.0	-	-	2.0	17.0	38.3		55.3	0.138
L.104	Daegu T. C.	960	960	-	18.0	-	-	2.0	20.0	36.2		56.2	0.141
L.105	Gongju T. C.	1,040	1,040	2.2	20.0	21.6	2.2	2.2	48.2	38.3		86.5	0.216
L.106	Incheon T. C.	1,200	1,200	-	20.0	-	-	2.0	22.0	40.5		62.5	0.156
L.107	Jeonju T. C.	720	720	-	15.0	-	-	2.0	17.0	38.3		55.3	0.138
L.108	Jinju T. C.	800	800	-	15.0	-	-	2.0	17.0	38.3		55.3	0.138
L.109	Mogpo T. C.	800	800	-	15.0	-	-	2.0	17.0	38.3		55.3	0.138
L.110	Seoul J. T. C.	1,120	1,120	-	15.0	-	-	2.0	17.0	40.5		57.5	0.144
	Sub-Total	8,800	8,800	2.2	163.0	21.6	2.2	20.2	209.2	383.2		592.4	1.480
	M. Colleges of Education												
M.101	Busan N. U.	613	920	5.6	15.0	56.0	5.6	5.6	87.8	127.8		215.6	0.539
M.102	Chung Bug N. U.	650	1,040	11.3	15.0	112.6	11.3	11.3	161.5	170.4		331.9	0.830
M.103	Chung Nam N. U.	60	120	2.8	5.0	28.0	2.8	2.8	41.4	149.1		190.5	0.476
M.104	Gangweon N. C.	520	640	5.6	10.0	56.0	5.6	5.6	82.8	42.6		125.4	0.314
M.105	Gongju N. T. C.	1,327	1,560	5.6	15.0	56.0	5.6	5.6	87.8	106.5		194.3	0.486
M.106	Gyeong Bug N. U.	1,345	1,500	5.6	15.0	56.0	5.6	5.6	87.8	234.3		322.1	0.805
M.107	Gyeongsang N. C.	357	760	11.3	5.0	112.6	11.3	11.3	151.5	127.8		279.3	0.698
M.108	Jeju N. C.	219	400	5.6	5.0	56.0	5.6	5.6	77.8	42.6		120.4	0.301
M.109	Jeon Bug N. U.	100	520	7.0	5.0	70.0	7.0	7.0	96.0	76.7		172.7	0.432
M.110	Jeon Nam N. U.	90	360	7.0	5.0	70.0	7.0	7.0	96.0	170.4		266.4	0.666
M.111	Seoul N. U.	1,944	2,100	-	-	-	-	-	-	460.1		460.1	1.150
M.112	Ewha W. U. (Private)	849	1,060	-	10.0	-	-	1.0	11.0	149.1		160.1	0.400
	Sub-Total	8,074	10,980	67.4	105.0	673.2	67.4	68.4	981.4	1,857.4		2,838.8	7.097
	5. Technical Assistance												
	a. Health Education Study	-	-	-	-	-	-	-	-	-	44.0	44.0	0.110
	b. Management Education	-	-	-	-	-	-	-	-	-	32.0	32.0	0.080
	c. Staff Development	-	-	-	-	-	-	-	-	-	120.0	120.0	0.300
	Sub-Total	-	-	-	-	-	-	-	-	-	196.0	196.0	0.490
	Total Project costs excluding contingencies (Won)	-	-	450.6	1,215.5	4,505.6	450.6	499.1	7,121.4	16,741.6	196.0	24,059.0	
	(US$)			1.127	3.038	11.264	1.127	1.247	17.803	41.854	0.490		60.147
	6. Contingencies Amounts (Won)			89.6	241.1	902.9	88.0	98.8	1,420.4	2,607.2	-	4,027.6	10.069
	Total Project costs including contingencies (Won)			540.2	1,456.6	5,408.5	538.6	597.9	8,541.8	19,348.8	196.0	28,086.6	70.216

April 1973

REPUBLIC OF KOREA

SECOND EDUCATION PROJECT

CONTINGENCY ALLOWANCES
(in Thousand of Dollars)

	Site Development			Construction			Furniture			Equipment			Professional Services			Specialist Services and Fellowships			Total		
	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total
Allowance for Unforeseen Factors:																					
a. Percent	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	7.0	7.3	10.0	10.0	10.0	0	0	-	9.9	7.1	8.1
b. Amount	101	11	112	1,144	286	1,430	90	22	112	481	2,593	3,074	112	13	125	-	-	-	1,928	2,925	4,853
Allowance for Price Increases:																					
a. Percent (1½ yrs)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	8.0	9.6	10.0	8.0	8.2	10.0	8.0	9.8	0	0	-	9.9	8.1	8.7
b. Amount	101	11	112	1,144	286	1,430	90	18	108	481	2,963	3,444	112	10	122	-	-	-	1,928	3,288	5,216
Total Contingencies																					
a. Percent	20.0	20.0	20.0	20.0	20.0	20.0	20.0	18.0	19.6	20.0	15.0	15.5	20.0	18.0	19.8				19.8	152	16.8
b. Amount	202	22	224	2,288	572	2,860	180	40	220	962	5,556	6,518	224	23	247	-	-	-	3,856	6,213	10,069
c. % of Total	90.0	10.0	100.0	80.0	20.0	100.0	81.7	18.3	100.0	14.8	85.2	100.0	90.7	9.3	100.0	-	-	-			
Total Cost Excluding Contingencies	1,014	113	1,127	11,442	2,860	14,302	902	225	1,127	4,815	37,039	41,854	1,122	125	1,247	98	392	490 1/	19,393	40,754	60,147
Total Project Cost Including Contingencies	1,216	135	1,351	13,730	3,432	17,162	1,082	265	1,347	5,777	42,595	48,372	1,346	148	1,494	98	392	490	23,249	46,967	70,216
% of Total	90	10	100	80	20	100	80	20	100	10.4	89.6	100.0	90.1	9.9	100.0	20	80	100	33	67	100

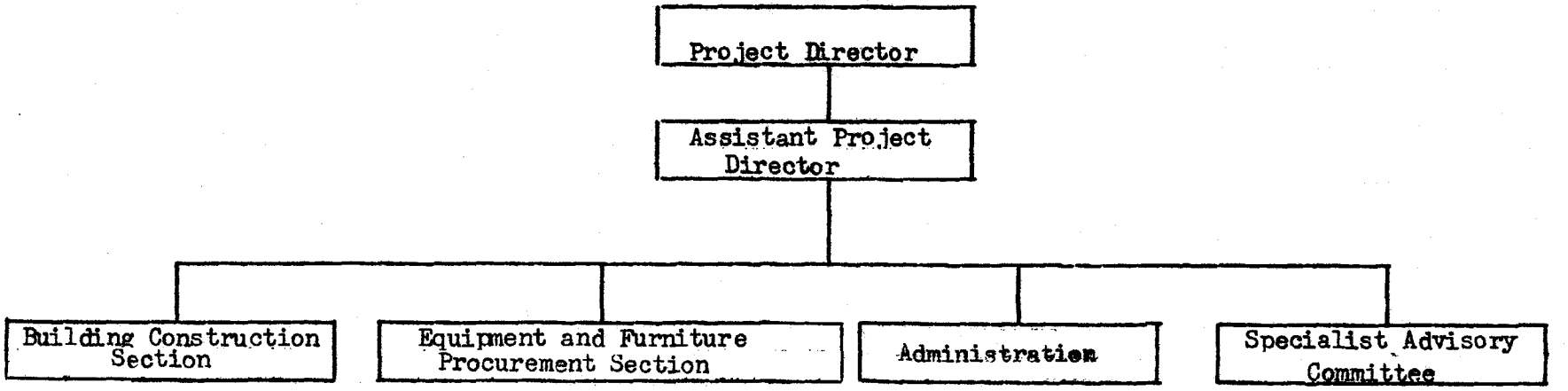
1/ Includes contingency.

March 1973.

ANNEX 9

REPUBLIC OF KOREA
SECOND EDUCATION PROJECT

PROJECT UNIT ORGANIZATION AND STAFFING



Building Construction Section	
Chief Architect	1
Project Architects	3
Project Engineers	
a. Structural	2
b. Electrical	2
c. Mechanical	1
Typists	3

Equipment and Furniture Procurement Section	
Chief Procurement Officer	1
Procurement Specialists	10
Typists	4

Administration	
Chief Administrator	1
Accountant	2
Others	2
Typists	2

Specialist Advisory Committee	
Specialist for:	
Teacher Training	1
Civil Engineering	1
Mechanical "	1
Electrical "	1
Chemical Engineering	1
Textile "	1
Naval "	1
Higher Agricultural Education	1
Veterinary Medicine	1
Natural Science	1

January, 1973.

ANNEX 10

REPUBLIC OF KOREA

SECOND EDUCATION PROJECT

ESTIMATED FORECAST OF DISBURSEMENT

Quarter *	Quarterly Disbursement US$ (Mil.)	Accumulated Disbursement US$ (Mil.)	Total Balance Undisbursed US$ (Mil.)
1	0.06	0.06	42.94
2	0.08	0.14	42.86
3	0.01	0.15	42.85
4	-	0.15	42.85
5	0.03	0.18	42.82
6	8.27	8.45	34.55
7	4.57	13.02	29.98
8	4.57	17.59	25.41
9	6.42	24.01	18.99
10	6.42	30.43	12.57
11	8.27	38.70	4.30
12	0.03	38.73	4.27
13	-	38.73	4.27
14	-	38.73	4.27
15	4.27	43.00	-

* Starting from the date of effectiveness.

March, 1973.

REPUBLIC OF KOREA

SECOND EDUCATION PROJECT

Credit/Loan and Project Summary

Borrower: The Republic of Korea

Amount: A credit of US$ 20 million equivalent and a loan of US$ 23 million equivalent. The proposed credit and loan would finance about 60 percent of the cost of a second education project.

Terms and conditions: The credit would be on standard terms. The loan would be payable in 30 years including a ten-year grace period at 7¼ percent interest per annum.

Project: The project would provide:

(a) Equipment for and extension of buildings to:

- (i) 18 technical and 14 agricultural high schools;
- (ii) 10 higher schools/junior colleges for industrial, agricultural, fishery and nursing training;
- (iii) colleges of engineering, natural sciences and agriculture in 9 universities and a merchant marine college; and
- (iv) 10 junior teacher colleges and 12 colleges of education.

(b) Specialist services and fellowships for:

- (i) a pre-investment study on health education;
- (ii) a pre-investment study on management education; and
- (iii) staff development.

Estimated Project Cost:		US$ (million)
1.	Technical and agricultural high schools	23.60
2.	Higher schools/junior colleges	5.97
3.	Universities	21.51
4.	Teacher education	8.58
5.	Specialist services and fellowships	0.49
6.	Contingencies	
	Unforeseen events	4.85
	Price increase	5.22
	Total Project Cost	70.22

Category of Expenditure:		
1.	Construction	16.68
2.	Furniture	1.13
3.	Equipment	41.85
4.	Specialist services and fellowships	0.49
5.	Contingencies	
	Unforeseen evens	4.85
	Price increase	5.22
	Total Project Cost	70.22

Financing:		
	Bank/IDA	43.00
	Government	27.22
	Total Project Cost	70.22

Procurement Arrangements: International competitive bidding for equipment. A margin of preference of 15% over the c.i.f., price of competing imports or the applicable customs duty whichever is the lower would be applied in the comparison of bids. Competitive bidding following advertising in national publications for construction and furniture.

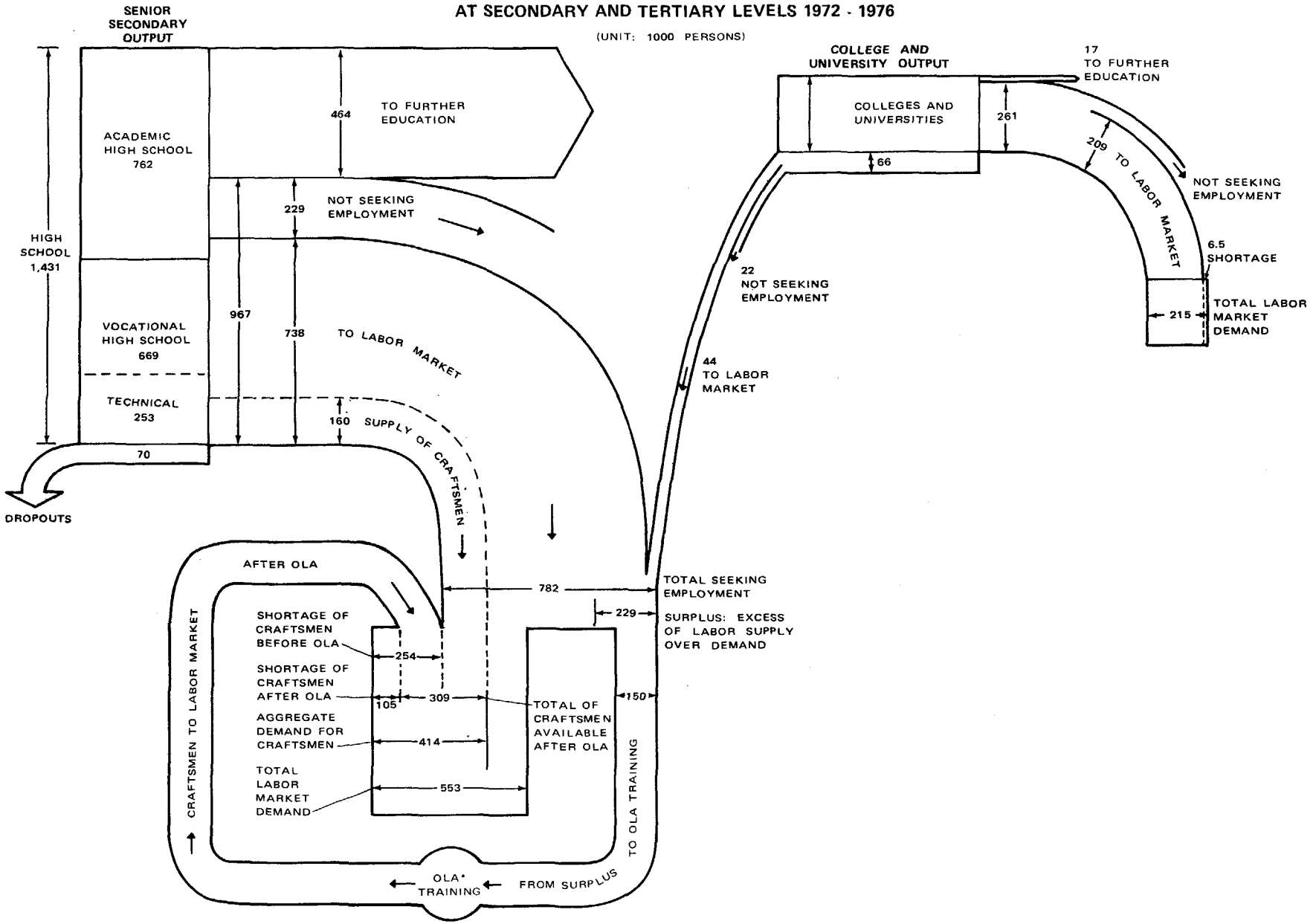
Estimated Disbursement:

US $ Million					
FY 1974	FY 1975	FY 1976	FY 1977	FY 1978	Cumulative Total
0.15	12.87	25.68	4.30	-	43.00

March, 1973.

REPUBLIC OF KOREA
FORECAST OF AGGREGATE DEMAND AND SUPPLY OF MANPOWER AT SECONDARY AND TERTIARY LEVELS 1972 - 1976

(UNIT: 1000 PERSONS)



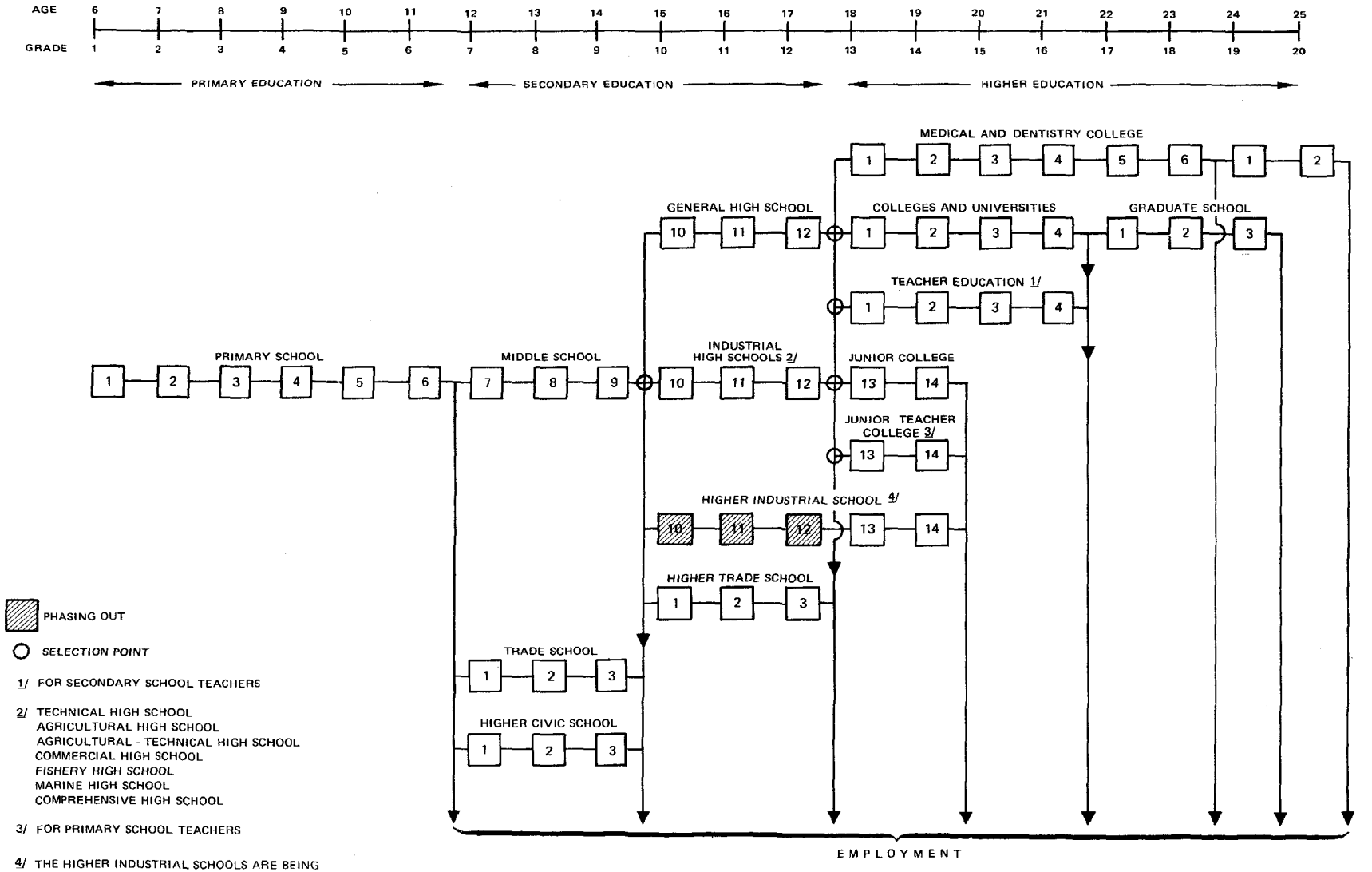
*OLA = Office of Labor Affairs Training Courses

Source: IBRD/IDA staff on the basis of the "Third Five-Year Manpower Development Plan" of the Ministry of Science and Technology.

January, 1973

World Bank — 6334(4R)

REPUBLIC OF KOREA: STRUCTURE OF EDUCATION, 1972



PHASING OUT

SELECTION POINT

1/ FOR SECONDARY SCHOOL TEACHERS

2/ TECHNICAL HIGH SCHOOL
AGRICULTURAL HIGH SCHOOL
AGRICULTURAL - TECHNICAL HIGH SCHOOL
COMMERCIAL HIGH SCHOOL
FISHERY HIGH SCHOOL
MARINE HIGH SCHOOL
COMPREHENSIVE HIGH SCHOOL

3/ FOR PRIMARY SCHOOL TEACHERS

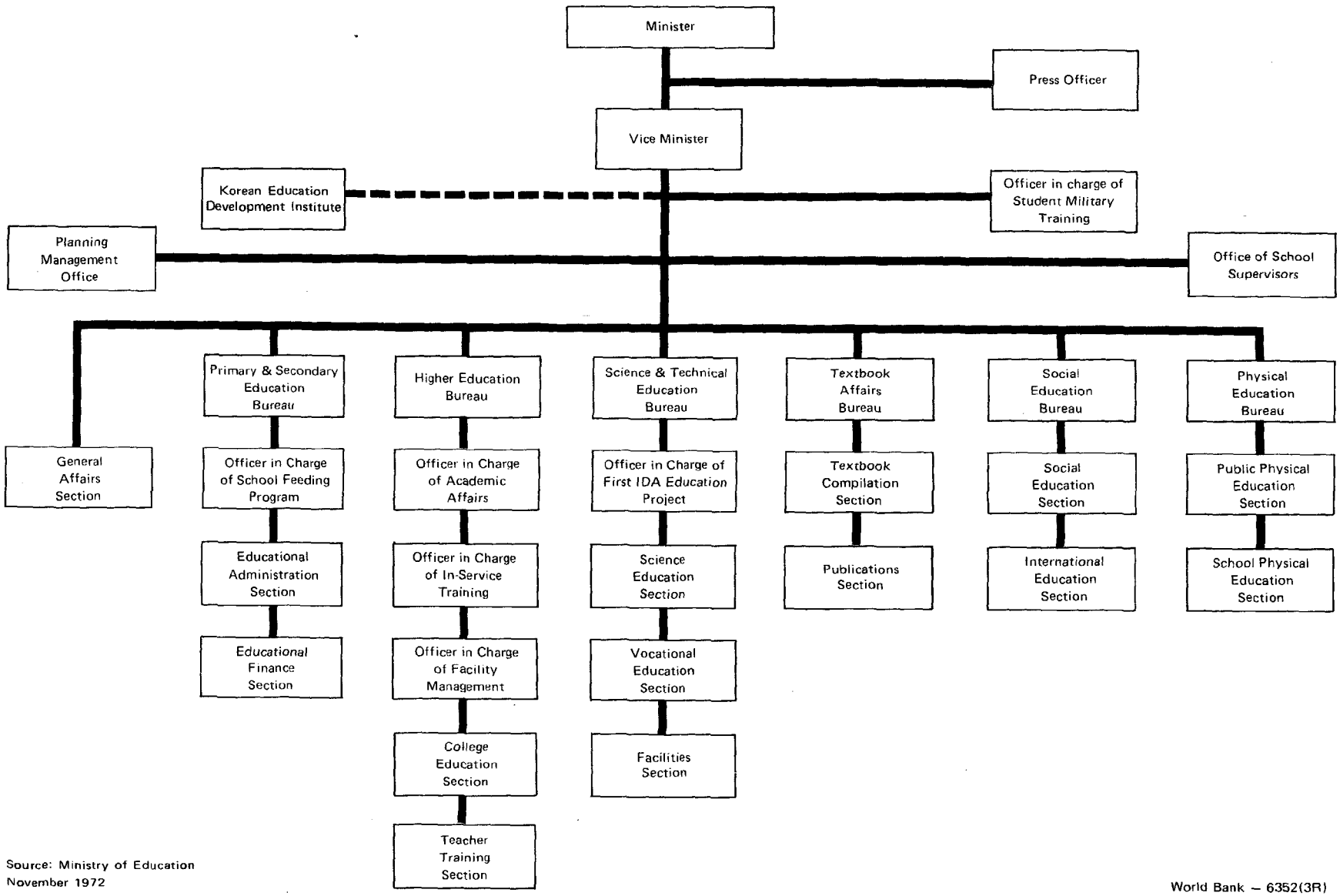
4/ THE HIGHER INDUSTRIAL SCHOOLS ARE BEING TRANSFORMED INTO TWO-YEAR POST - SECONDARY TECHNICAL SCHOOLS

Source: IBRD/IDA staff on the basis of Ministry of Education data.
November, 1972

World Bank — 7199(R)

REPUBLIC OF KOREA

ORGANIZATION OF THE MINISTRY OF EDUCATION, 1972

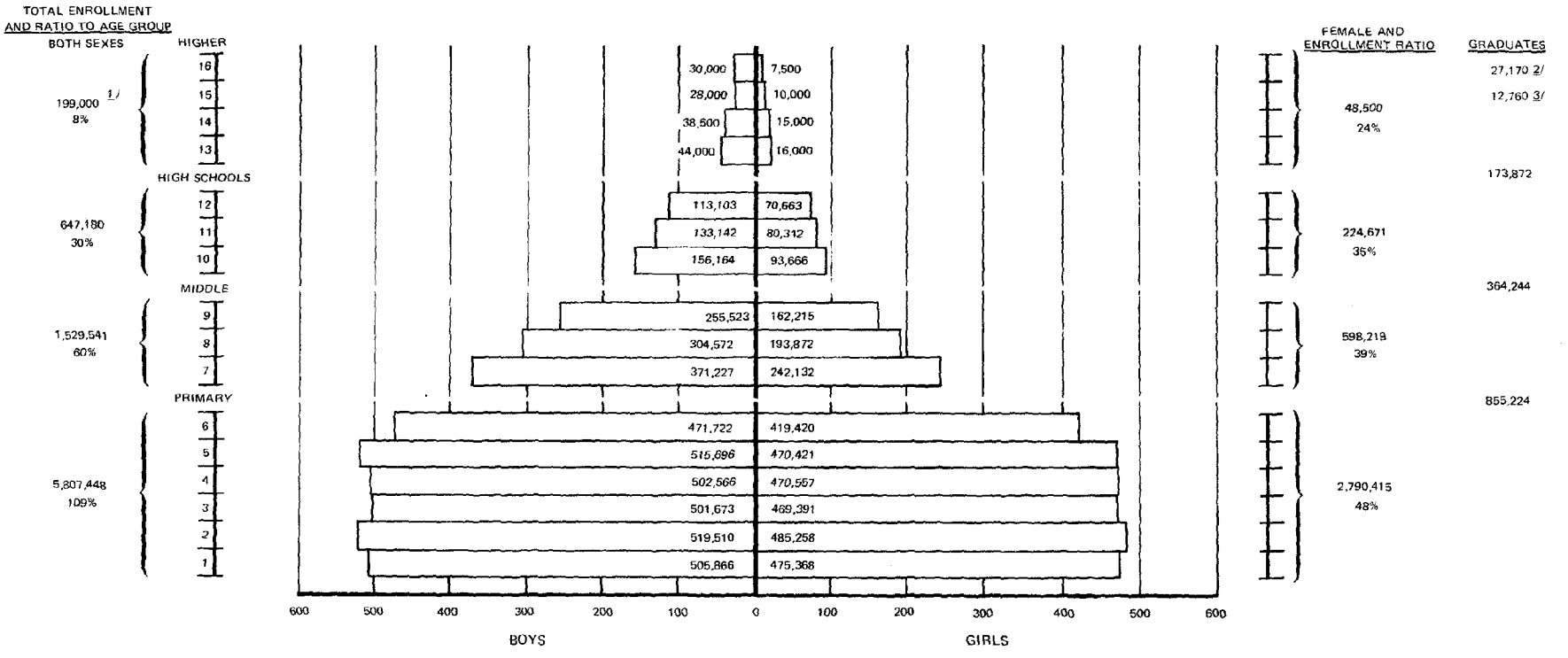


Source: Ministry of Education
November 1972

World Bank – 6352(3R)

REPUBLIC OF KOREA

ENROLLMENT PYRAMID 1971



1/ *Including* 7000 in graduate studies ; but not included in pyramid

2/ From universities

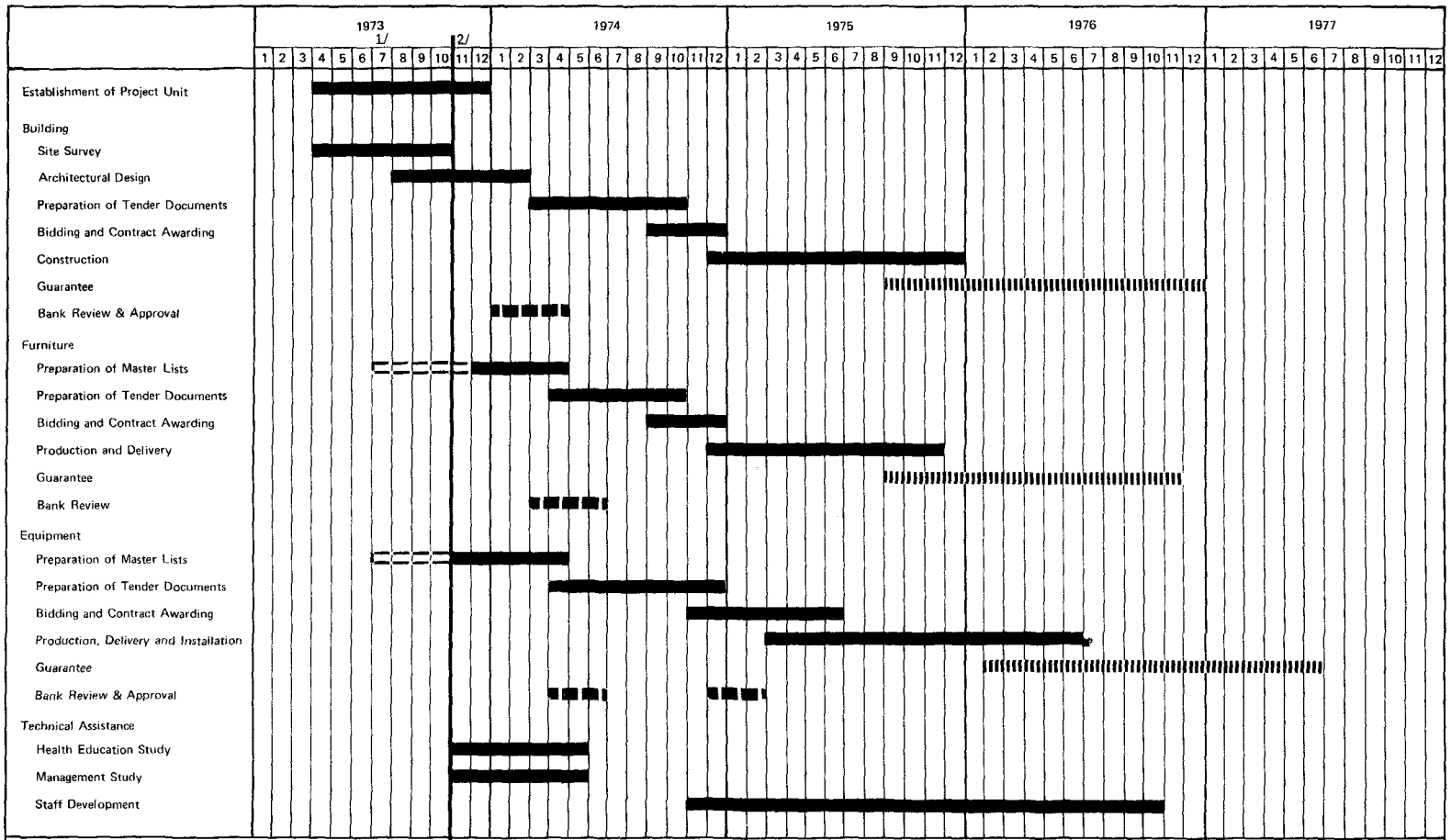
3/ From junior college level

Source: IBRD/IDA staff based on Minister of Education statistics
November, 1972

World Bank – 7198(R)

REPUBLIC OF KOREA – SECOND EDUCATION PROJECT

ESTIMATED PROJECT IMPLEMENTATION AND EXPENDITURES SCHEDULE



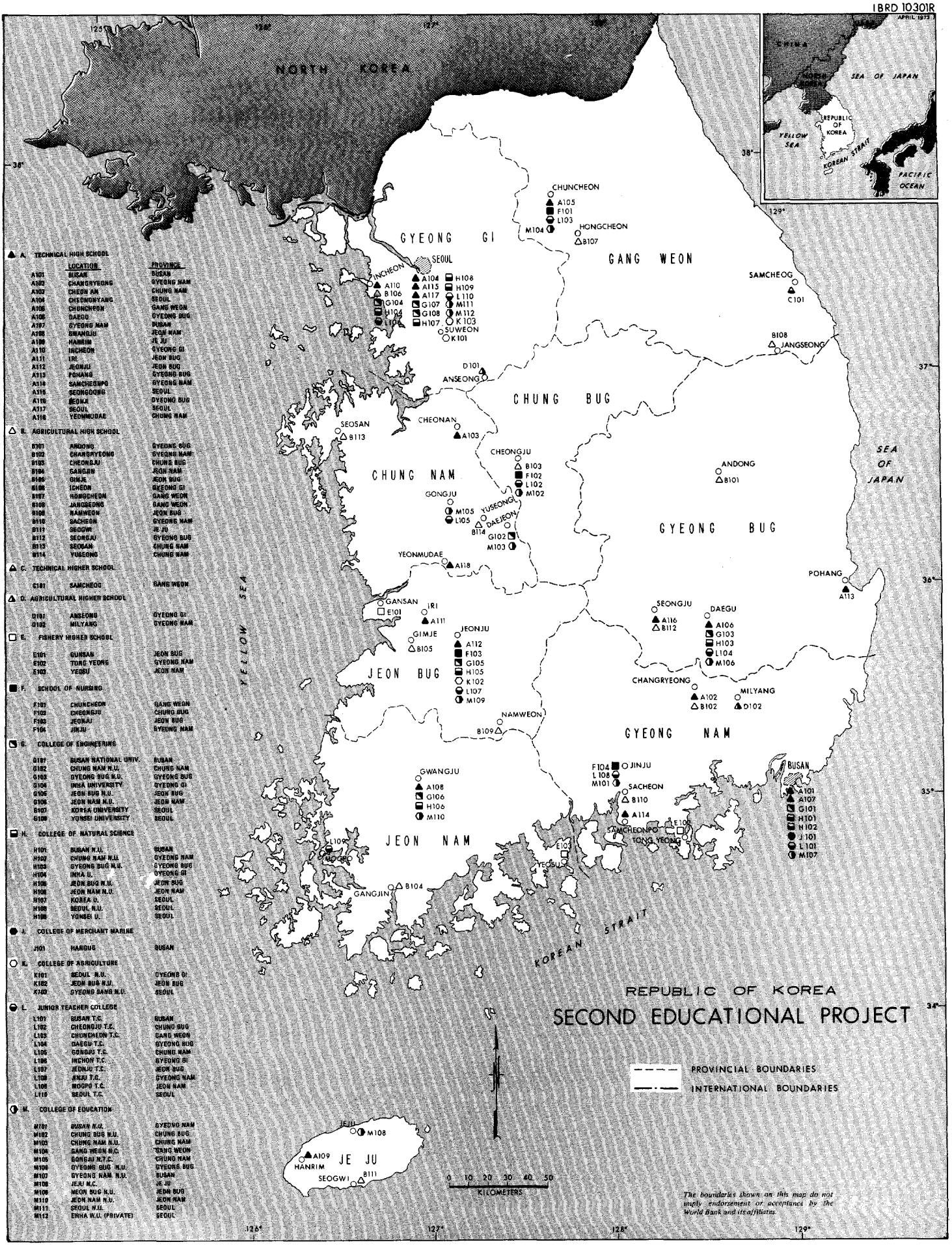
ESTIMATED EXPENDITURES (in '000 of Dollars)	1973			2/	1974				1975				1976				1977		TOTAL
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Equipment (90% of total cost)				—	—	—	—	—	7408	3704	3704	5551	5556	7407	—	—	—	3710	37040
Technical Assistance (80% of total cost)				60	80	10	—	30	30	30	30	30	30	30	30	—	—	—	390
Contingencies (55% of total)				—	—	—	—	—	835	835	835	835	835	835	—	—	—	560	5570
Total				60	80	10		30	8273	4569	4569	6416	6421	8272	30			4270	43.000

1/ Estimated date of the signing of Credit and Loan Agreement

2/ Estimated Effectiveness date

World Bank – 7379 (2R)

March, 1973



▲ A. TECHNICAL HIGH SCHOOL

	LOCATION	PROVINCE
A101	BUSAN	BUSAN
A102	CHANGRYEONG	GYEONG NAM
A103	CHEON AN	CHUNG NAM
A104	CHEONGNYANG	SEOUL
A105	CHUNCHEON	GANG WEON
A106	DAEGU	GYEONG BUG
A107	GYEONG NAM	BUSAN
A108	GWANGJU	JEON NAM
A109	HANRIM	JE JU
A110	INCHEON	GYEONG GI
A111	IRI	JEON BUG
A112	JEONJU	JEON BUG
A113	POHANG	GYEONG BUG
A114	SAMCHEONPO	GYEONG NAM
A115	SEONGDONG	SEOUL
A116	SEONGJU	GYEONG BUG
A117	SEOUL	SEOUL
A118	YEONMUDAE	CHUNG NAM

△ B. AGRICULTURAL HIGH SCHOOL

B101	ANDONG	GYEONG BUG
B102	CHANGRYEONG	GYEONG NAM
B103	CHEONGJU	CHUNG BUG
B104	GANGJIN	JEON NAM
B105	GIMJE	JEON BUG
B106	ICHEON	GYEONG GI
B107	HONGCHEON	GANG WEON
B108	JANGSEONG	JEON NAM
B109	NAMWEON	JEON BUG
B110	SACHEON	GYEONG NAM
B111	SEOGWI	JE JU
B112	SEONGJU	GYEONG BUG
B113	SEOSAN	CHUNG NAM
B114	YUSEONG	CHUNG NAM

△ C. TECHNICAL HIGHER SCHOOL

C101	SAMCHEOG	GANG WEON

△ D. AGRICULTURAL HIGHER SCHOOL

D101	ANSEONG	GYEONG GI
D102	MILYANG	GYEONG NAM

□ E. FISHERY HIGHER SCHOOL

E101	GUNSAN	JEON BUG
E102	TONG YEONG	GYEONG NAM
E103	YEOSU	JEON NAM

■ F. SCHOOL OF NURSING

F101	CHUNCHEON	GANG WEON
F102	CHEONGJU	CHUNG BUG
F103	JEONJU	JEON BUG
F104	JINJU	GYEONG NAM

◪ G. COLLEGE OF ENGINEERING

G101	BUSAN NATIONAL UNIV.	BUSAN
G102	CHUNG NAM N.U.	CHUNG NAM
G103	GYEONG BUG N.U.	GYEONG BUG
G104	INHA UNIVERSITY	GYEONG GI
G105	JEON BUG N.U.	JEON BUG
G106	JEON NAM N.U.	JEON NAM
G107	KOREA UNIVERSITY	SEOUL
G108	YONSEI UNIVERSITY	SEOUL

◪ H. COLLEGE OF NATURAL SCIENCE

H101	BUSAN N.U.	BUSAN
H102	CHUNG NAM N.U.	GYEONG NAM
H103	GYEONG BUG N.U.	GYEONG BUG
H104	INHA U.	GYEONG GI
H105	JEON BUG N.U.	JEON BUG
H106	JEON NAM N.U.	JEON NAM
H107	KOREA U.	SEOUL
H108	SEOUL N.U.	SEOUL
H109	YONSEI U.	SEOUL

● J. COLLEGE OF MERCHANT MARINE

J101	HARGUG	BUSAN

○ K. COLLEGE OF AGRICULTURE

K101	SEOUL N.U.	GYEONG GI
K102	JEON BUG N.U.	JEON BUG
K103	GYEONG SANG N.U.	SEOUL

◒ L. JUNIOR TEACHER COLLEGE

L101	BUSAN T.C.	BUSAN
L102	CHEONGJU T.C.	CHUNG BUG
L103	CHUNCHEON T.C.	GANG WEON
L104	DAEGU T.C.	GYEONG BUG
L105	GONGJU T.C.	CHUNG NAM
L106	INCHON T.C.	GYEONG GI
L107	JEONJU T.C.	JEON BUG
L108	JINJU T.C.	GYEONG NAM
L109	MOGPO T.C.	JEON NAM
L110	SEOUL T.C.	SEOUL

◑ M. COLLEGE OF EDUCATION

M101	BUSAN N.U.	GYEONG NAM
M102	CHUNG BUG N.U.	CHUNG BUG
M103	CHUNG NAM N.U.	CHUNG NAM
M104	GANG WEON N.C.	GANG WEON
M105	GONGJU N.T.C.	CHUNG NAM
M106	GYEONG BUG N.U.	GYEONG BUG
M107	GYEONG NAM N.U.	BUSAN
M108	JEJU N.C.	JE JU
M109	JEON BUG N.U.	JEON BUG
M110	JEON NAM N.U.	JEON NAM
M111	SEOUL N.U.	SEOUL
M112	EWHA W.U. (PRIVATE)	SEOUL

The boundaries shown on this map do not imply endorsement or acceptance by the World Bank and its affiliates.